

CITY OF NEWTON
PURCHASING DEPARTMENT

CONTRACT FOR HISTORIC NEWTON
(M.G.L. Ch. 30, Sec. 39m)

PROJECT MANUAL:
HISTORIC NEWTON TOMB
RESTORATION PROJECT
INVITATION FOR BID #11-78

Prepared by:

Structures North Consulting Engineers
60 Washington Street
Salem, MA 01970
978-745-6817

APRIL 2011

Setti D. Warren, Mayor

CITY OF NEWTON, MASSACHUSETTS

PURCHASING DEPARTMENT
purchasing@newtonma.gov
Fax (617) 796-1227

May 4, 2011

ADDENDUM #2

INVITATION FOR BID #11-78

HISTORIC NEWTON TOMB RESTORATION PROJECT

THIS ADDENDUM IS TO: **Answer the following Questions:**

Q1. Please verify which access ways at each burying ground to be used by the contractor?

A1. The Contractor shall follow the pathways/driveways shown on the historic plans, S1.0, S2.0 and S3.0, even if they are not currently maintained.

Q2. Please verify any restriction relating to heavy equipment and construction vehicles at each location?

A2. All heavy equipment use shall be kept to a minimum and only used on pathways/driveways noted on A1. As a guideline, the largest piece of equipment used shall be a "rubber-tired" backhoe. Actual equipment specifications used shall be verified with Department of Public Works and Project Engineer prior to delivery of equipment to the burying grounds.

Q3. Since the site map for South Parish details roadways that no longer exist, please provide a new site map to show access routes?

A3. Although the paths within the burying ground no longer exist the access routes shall follow the original paths.

Q4. Please kindly clarify the 5% minority participation requirement on this project. Is the 5% participation mandatory or is it meant as a good faith effort and goal?

Historic preservation, conservation and restoration is a very specialized field and the community of trained conservators and craftsmen is very small. It may be unrealistic to expect and set any specific percentage of minority participation in a project of such nature. I want to emphasize that the professional community of conservators, especially the part of it that joined the American Institute for Conservation, is guided by the Code of Ethics that includes in item IX the following statement:

"The conservation professional shall act with honesty and respect in all professional relationships, seek to ensure the rights and opportunities of all individuals in the profession, and recognize the specialized knowledge of others. "

A4. It is the City of Newton's goal to promote opportunities for minority and women owned businesses. For your convenience, here is the website for the State Office of Minority and Women Business Assistance www.somwba.state.ma.us.

Q5. And in item V "While circumstances may limit the resources allocated to a particular situation, the quality of work that the conservation professional performs shall not be compromised."

A5. We were unable to find this sentence in our bid document.

Q6. Where are the cast iron doors located?

A6. East parish burial ground

Q7. Are there doors there now?

A7. No, the doorway is currently bricked-in.

Q8. Do you have the drawings or something for the doors?

A8. Details have been provided for attaching the new door cover to the tomb, as there is no evidence of what was originally in place; the new door will be undecorated.

Q9. Was the estimate based on the base bid? Or is the base bid based on the base bid and alternates?

A9. The estimate included the base bid and all alternatives.

Q10. How far apart are the different sites?

A10. Please see the attached map and directions between the burying grounds.

Q11. As far as the two locations that are locked, how do we get a key for a visit?

A11. To access the locked burying grounds contact:

Historic Newton

Jackson Homestead and Museum

527 Washington St.

Newton, MA 02458

617-796-1450

All other terms and conditions of this bid remain unchanged

PLEASE ENSURE THAT YOU ACKNOWLEDGE THIS ADDENDUM ON YOUR BID FORM.

Thank you.



Rositha Durham
Chief Procurement Officer

CITY OF NEWTON, MASSACHUSETTS

PURCHASING DEPARTMENT

purchasing@newtonma.gov

Fax (617) 796-1227

May 3, 2011

ADDENDUM #1

INVITATION FOR BID #11-78

HISTORIC NEWTON TOMB RESTORATION PROJECT

THIS ADDENDUM IS TO: **Reschedule the Bid Opening Date in order to answer questions from the Pre-Bid Meeting and other items:**

BID OPENING DATE: FRIDAY, MAY 6, 2011 AT 11:00 A.M.

All other terms and conditions of this bid remain unchanged

PLEASE ENSURE THAT YOU ACKNOWLEDGE THIS ADDENDUM ON YOUR BID FORM.

Thank you.



Rositha Durham
Chief Procurement Officer

CITY OF NEWTON

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END OF SECTION

**CITY OF NEWTON
PURCHASING DEPARTMENT
INVITATION FOR BID #11-78**

The City of Newton invites sealed bids from Contractors for

HISTORIC NEWTON TOMB RESTORATION PROJECT

Pre-bid Conference at: 11:00 a.m., April 28, 2011, 527 Washington Street, Newton

Bids will be received until: 11:00 a.m., May 5, 2011

at the Purchasing Department, Room 204, Newton City Hall, 1000 Commonwealth Ave., Newton, MA 02459. Immediately following the deadline for bids all bids received within the time specified will be publicly opened and read aloud.

Work under this contract shall consist of: the repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds, the East, South and West Burying Grounds.

Anticipated Start Date is: 5 days from execution of contract

Completion Date is: November 15, 2012

Contract Documents will be available online at the City's website: www.ci.newton.ma.us/bids after: 10:00 a.m., April 21, 2011 Bidders are responsible for downloading the specifications from the City's web site at www.ci.newton.ma.us/bids. Bidders are requested to email the Purchasing Department (purchasing@newtonma.gov) their Company Name, Address, Email address, Phone & Facsimile number and what bid # (i.e. 11-78) they have downloaded.

All bids must be accompanied by a bid deposit in an amount that is not less than five percent (5%) of the value of the bid, including all add alternates. Bid deposits, payable to the City of Newton, shall be either in the form of a bid bond, cash, certified check, or a treasurer's or cashier's check issued by, a responsible bank or trust company.

Bids must be submitted with one ORIGINAL and one COPY.

All bids are subject to the provisions of M.G.L. Chapter 30, Section 39M. **Wages are subject** to minimum wage rates determined by the Massachusetts Department of Labor and Industries pursuant to M.G.L. Chapter 149, Sec. 26 to 27H. The schedule of wage rates applicable to this contract is included in the bidding documents. In addition, the prevailing wage schedule will be updated annually for all public construction projects lasting longer than one (1) year. You will be required to pay the rates set out in any updated prevailing wage schedule. Increases in prevailing wage schedules will not be the basis for change order requests. The successful bidder will be required to provide a Certificate of Insurance demonstrating current coverage of the type and amounts set forth in the Project Manual. The successful bidder will be required to furnish both a **Performance Bond** and **Labor and Materials Payment Bond in the amount of 50%** of the contract total.

Bidders attention is directed to the requirements of the City of Newton Supplemental Equal Employment Opportunity, Anti-Discrimination and Affirmative Action Program and also to the Minority/Women Business Enterprise Plan, December 1999, which is hereby incorporated into the Contract Documents.

Once you've downloaded this bid from the internet website (www.ci.newton.ma.us/bids) I strongly suggest you email (purchasing@newtonma.gov) your company's Name, address, EMAIL, phone, fax AND the INVITATION FOR BID NUMBER and Project Title, so that we may add you to the Bidders List and you will be notified of any/all addendums.

The City of Newton will reject any and all bids when required to do so by the above referenced General Laws. In addition, the City of Newton reserves the right to waive any informalities in any or all bids, or to reject any or all bids (in whole or in part) if it be in the public interest to do so.

CITY OF NEWTON

Rositha Durham
Chief Procurement Officer

April 21, 2011

CITY OF NEWTON
DEPARTMENT OF PURCHASING
INSTRUCTIONS TO BIDDERS

ARTICLE 1 - BIDDER'S REPRESENTATION

- 1.1 Each General Bidder (hereinafter called the "Bidder") by making a bid (hereinafter called "bid") represents that:
1. The Bidder has read and understands the Contract Documents and the bid is made in accordance therewith.
 2. The Bidder has visited the site and is familiar with the local conditions under which the Work has to be performed.
- 1.2 Failure to so examine the Contract Documents and site will not relieve any Bidder from any obligation under the bid as submitted.

ARTICLE 2 - REQUEST FOR INTERPRETATION

- 2.1 Bidders shall promptly notify the City of any ambiguity, inconsistency, or error which they may discover upon examination of the Contract Documents, the site, and local conditions.
- 2.2 Bidders requiring clarification or interpretation of the Contract Documents shall make a written request to the *Chief Procurement Officer*, at purchasing@newtonma.gov or via facsimile (617) 796-1227. The City will answer such requests if received Friday, April 29, 2011 at 12:00 noon.
- 2.3 Interpretation, correction, or change in the Contract Documents will be made by Addendum which will become part of the Contract Documents. The City will not be held accountable for any oral instruction.
- 2.4 Addenda will be emailed to every individual or firm on record as having taken a set of Contract Documents.
- 2.5 Copies of addenda will be made available for inspection at the location listed in the Invitation for Bids where Contract Documents are on file, in addition to being available online at www.ci.newton.ma.us/bids.
- 2.6 Bidders or proposers contacting ANY CITY EMPLOYEE regarding an Invitation for Bid (IFB) or a Request for Proposal (RFP), outside of the Purchasing Department, once an IFB or RFP has been released, may be disqualified from the bidding process.
- 2.7 Bidders downloading information off the internet web site are solely responsible for obtaining any addenda prior to the bid opening. If the bidder makes themselves known to the Purchasing Dept., at purchasing@newtonma.gov or via facsimile (617) 796-1227, they shall be placed on the bidder's list. Bidders must provide the Purchasing Dept. with their company's name, street address, city, state, zip, phone, fax, email address and **INVITATION FOR BID #11-78**.

ARTICLE 3 - MBE PARTICIPATION

- 3.1 By bidding on this project each Bidder certifies its intent to comply with the City of Newton Minority/Women Business Enterprise Plan dated December 1999 to further expand business opportunities for minority firms. A copy of this plan is incorporated in the Project Manual.
- 3.2 Bidders are advised that the City of Newton Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program is applicable to all construction contracts in excess of \$50,000.00. A copy of this program is incorporated in the Project Manual. A Contractor's Certification form must be signed by all successful low bidders prior as a condition of contract award. No contract shall be executed or valid unless the contractor has executed and submitted the Contractor's Certification. (see Attachment B to the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program.)

- 3.3 The awarded bidder shall, prior to the award of any sub-contract, obtain from each of its sub-contractors the Sub-Contractors Certification certifying the Sub-Contractor shall comply with the minority manpower ratio and specific affirmative action steps described in the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program contained in the Project Manual. (see Attachment C to the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program.)

ARTICLE 4 - PREPARATION AND SUBMISSION OF BIDS

- 4.1 Bids shall be submitted on the "Bid Form" as appropriate, furnished by the City.
- 4.2 All entries on the Bid Form shall be made by typewriter or in ink.
- 4.3 Where so indicated on the Bid Form, sums shall be expressed in both words and figures. Where there is a discrepancy between the bid sum expressed in words and the bid sum expressed in figures, the words shall control.
- 4.4 Bid Deposits shall be submitted in the amount specified in the Invitation for Bids. They shall be made payable to the City of Newton and shall be either in the form of cash, certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or a bid bond issued by a surety licensed to do business in the Commonwealth of Massachusetts; and shall be conditioned upon the faithful performance by the principal of the agreements contained in the bid.
- Bid deposits of the three (3) lowest responsible and eligible Bidders shall be retained until the execution and delivery of the Owner/Contractor agreement.
- 4.5 The Bid, including the bid deposit shall be enclosed in a sealed envelope with the following plainly marked on the outside:
- * GENERAL BID FOR:
 - * NAME OF PROJECT AND **INVITATION NUMBER**
 - * BIDDER'S NAME, BUSINESS ADDRESS, AND PHONE NUMBER
- 4.6 Date and time for receipt of bids is set forth in the Invitation for Bids.
- 4.7 Timely delivery of a bid at the location designated shall be the full responsibility of the Bidder.
- 4.8 Bids shall be submitted with **one original and one copy**.
- 4.9 The use of a company or brand name, except with software, in the specifications is intended solely for the purpose of describing a standard of quality, functional features and performance standards required and is not intended to limit or restrict competition. The bidder offering a product which they deem equal to the brand and model specified in the solicitation provided that the brand name specified is not followed by the words "no substitutions", **shall indicate so on the bid form and Minimum Requirements – Exception form** and submit with their bid the manufacturers specifications/descriptive literature for the product they are offering. **Failure to submit manufacturers specifications/descriptive literature with bids may be cause for bid rejection.**

"Equality" - An item equal to that named or described in the specifications of the contract may be furnished by the Vendor and the naming of any commercial name, trademark or other identification shall not be construed to exclude any item or manufacturer not mentioned by name or as limiting competition but shall establish a standard of equality only. An item shall be considered equal to the item so named or described if (1) it is at least equal in quality, durability, appearance, strength and design; (2) it will perform at least equally the function imposed by the general design for the work being contracted for or the material being purchased; and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the specifications. The name and identification of all materials other than the one specifically named shall be submitted to the City in writing for approval, at time of bid, use or fabrication of such items. Subject to the provisions of M.G.L., Ch. 30, Sec. 39J, approval shall be at the sole discretion of the City, shall be in writing to be effective, and the decision of the City shall be final. The City may require tests of all materials so submitted to establish quality standards at the Vendor's expense. All directions, specifications and recommendations by manufacturers for installation, handling, storing, adjustment and operation of their equipment shall be complied with; responsibility for proper performance shall continue to rest with the Vendor.

- 4.10 Be advised that a new Massachusetts law has been enacted that required all employees who work on Massachusetts public works construction sites must have no less than 10 hours of OSHA-approved safety and health training. See Chapter 306 of the Acts of 2004, which will become effective July 1, 2006.
1. This requirement will apply to any general bid or sub bid submitted on or after July 1, 2006 and to any contract awarded on or after July 1, 2006.
 2. This law directs the Massachusetts Attorney General to restrain the award of construction contracts to any contractor who is in violation to this requirement and to restrain the performance of these contracts by non-complying contractors.
 3. The contractor and all subcontractors on this project will be required to provide certification of compliance with this requirement. Non-compliance with this new Massachusetts Law will disqualify you from bidding on public contracts.

ARTICLE 5 - ALTERNATES

- 5.1 Each Bidder shall acknowledge Alternates (if any) in Section C on the Bid Form.
- 5.2 In the event an Alternate does not involve a change in the amount of the base bid, the Bidder shall so indicated by writing "No Change", or "N/C" or "0" in the space provided for that Alternate.
- 5.3 Bidders shall enter on the Bid Form a single amount for each Alternate which shall consist of the amount for work performed by the Contractor.
- 5.4 The low Bidder will be determined on the basis of the sum of the base bid and the accepted alternates.

ARTICLE 6 - WITHDRAWAL OF BIDS

- 6.1 Any bid may be withdrawn prior to the time designated for receipt of bids on written or telegraphic request. Telegraphic withdrawal of bids must be confirmed over the Bidder's signature by written notice postmarked on or before the date and time set for receipt of bids.
- 6.2 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids.
- 6.3 No bids shall be withdrawn for sixty days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids.

ARTICLE 7 - CONTRACT AWARD

- 7.1 The City of Newton will award the contract to the lowest eligible and responsible Bidder within sixty days, Saturdays, Sundays, and legal holidays excluded after the opening of bids.
- 7.2 The City of Newton reserves the right to waive any informalities in or to reject any or all Bids if it be in the public interest to do so.
- 7.3 As used herein, the term "lowest responsible and eligible Bidder" shall mean the Bidder (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who, where the provisions of section eight B of chapter twenty-nine apply, shall have been determined to be qualified thereunder.
- 7.4 It is the purpose of the City not to award this contract to any bidder who does not furnish evidence satisfactory to the Chief Procurement Officer that he has the ability and experience in this class of work and that he has sufficient capital and plant to enable him to prosecute the same successfully and to complete it within the specified time and that he will complete it in accordance with the terms thereof.
- 7.5 Subsequent to the award and within five (5) days, Saturday, Sundays and legal holidays excluded, after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the City a Contract in the form included in the Contract Documents in such number of counterparts as the City may require.

- 7.6 In the event that the City receives low bids in identical amount from two or more responsive and responsible Bidders, the City shall select the successful Bidder by a blind selection process such as flipping a coin or drawing names from a hat. The low Bidders who are under consideration will be invited to attend and observe the selection process.

ARTICLE 8 - TAXES

- 8.1 The Bidder shall not include in this bid any tax imposed upon the sale or rental of tangible personal property in this Commonwealth, such as any and all building materials, supplies, services and equipment required to complete the work.
- 8.2 The City is exempt from payment of the Massachusetts Sales Tax, and the Bidder shall not include any sales tax on its bid. The City's exemption Number is E-046-001-404.

END OF SECTION

CITY OF NEWTON
DEPARTMENT OF PURCHASING
BID FORM #11-78

- A. The undersigned proposes to furnish all labor and materials required in accordance with the Contract Documents supplied by the City of Newton entitled:

HISTORIC NEWTON TOMB RESTORATION PROJECT

for the contract price specified below, subject to additions and deduction according to the terms of the specifications.

- B. This bid includes addenda number(s) _____, _____, _____, _____,

- C. The proposed contract price is:

BASE BID

_____ DOLLARS (\$ _____).
(The figure inserted above shall be the Total Base Bid Price as computed on the Item Sheets attached hereto.)

ALTERNATE 1:

_____ DOLLARS (\$ _____).
(The figure inserted above shall be the Total Alternate 1 Bid Price as computed on the Item Sheets attached hereto.)

ALTERNATE 2:

_____ DOLLARS (\$ _____).
(The figure inserted above shall be the Total Alternate 2 Bid Price as computed on the Item Sheets attached hereto.)

ALTERNATE 3:

_____ DOLLARS (\$ _____).
(The figure inserted above shall be the Total Alternate 3 Bid Price as computed on the Item Sheets attached hereto.)

ALTERNATE 4:

_____ DOLLARS (\$ _____).
(The figure inserted above shall be the Total Alternate 3 Bid Price as computed on the Item Sheets attached hereto.)

ALTERNATE 5:

_____ DOLLARS (\$ _____).
(The figure inserted above shall be the Total Alternate 3 Bid Price as computed on the Item Sheets attached hereto.)

COMPANY: _____

- D. The undersigned has completed and submits herewith the following documents:

- ☐ Bid Form - signed, 2 pages
- ☐ Bid Item Sheets, 11 pages
- ☐ Bidder's Qualification Form and References, 2 pages

- ☐ Certificate of Non-Collusion, 1 page
- ☐ A five percent (5%) bid deposit/bid guarantee.

E. The undersigned agrees that, if s/he is selected as general contractor, s/he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a

contract in accordance with the terms of this bid and furnish a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price.

The undersigned hereby certifies that s/he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work and that s/he will comply fully with all laws and regulations applicable to awards made subject to section forty-four A of M.G.L. Chapter 30, s 39M.

The undersigned certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration ("OSHA") that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States OSHA that is at least 10 hours in duration. The undersigned understands that any employee found on a worksite subject to this section without documentation of successful completion of a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration shall be subject to immediate removal.

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Date _____

 (Name of General Bidder)
 BY: _____

 (Printed Name and Title of Signatory)

 (Business Address)

 (City, State, Zip)
 _____/_____
 (Telephone) (FAX)

 (E-mail address)

NOTE: If the bidder is a corporation, indicate state of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses of all partners; if an individual, give residential address if different from business address; and, if operating as a d/b/a give full legal identity. Attach additional pages as necessary.

END OF SECTION

The Contractor shall insert prices for each item in ink, in both words and figures, and is to show a total bid price. In the event a discrepancy between the written words and figures, the written words shall govern. In the event an error in the bidders total bid price, the corrected total bid obtained by the summation of the products of the unit prices multiplied by the respective quantities shall stand as the bidder's total bid price.

The Contractor is advised to review any related plans, conduct a full site review, and read all the provisions in the document before inserting prices.

Perform the following under Base Bid as noted below and on drawings.

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
ITEM: BB1 - REBUILD BRICK MASONRY Dismantle and reconstruct tomb brick walls and above ground monuments measured by the gross square foot per wythe of exposed face. Harvesting, cleaning and replacement of existing bricks (preferred) or provision of new bricks included. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER SQUARE FOOT	360	S.F.	\$ _____
ITEM: BB2 - STONE CONSERVATION Conservation and repair of existing stones and plaques as described on drawings and in Section 04550. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM	1	L.S.	\$ _____
ITEM: BB3 - TOMB TIEBACK INSTALLATION Install two tiebacks into the tomb headwalls and top of vault measured by the tomb. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER TOMB	7	TOMB	\$ _____
ITEM: BB4 - REPOINT BRICK VAULT Cut and point the brick joint-eroded tomb vault construction as needed, assume 50 square feet per tomb. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER SQUARE FOOT	350	S.F.	\$ _____

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
<p>ITEM: BB5 - REBUILD BRICK VAULT Dismantle and reconstruct damaged brick tomb vault construction as needed measured by the gross square foot per wythe of exposed face. Harvesting, cleaning and replacement of existing bricks (preferred) or provision of new bricks included. Assume 10 square feet per tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER SQUARE FOOT</p>	70	S.F.	\$ _____
<p>ITEM: BB6 - REPLACE SLATE STAIR COVERS Replace broken slate stair covers.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER EACH LOCATION</p>	2	E.A.	\$ _____
<p>ITEM: BB7 - RE-SET COPING STONES Remove and re-set coping stones at tomb headwalls.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER LINEAR FOOT</p>	75	L.F.	\$ _____
<p>ITEM: BB8 - ALL REMAINING AND INCIDENTAL WORK All remaining work to be performed by the lump sum as a non-measured item, including all temporary shoring and support, permits, trash disposal and all incidentals as well as all work indicated on the contract documents that are not described as unit cost items.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER LUMP SUM</p>	1	L.S.	\$ _____

TOTAL FOR ALL BASE BID ITEMS: \$ _____

Perform the following under Alternate #1 as noted below and on drawings.

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
<p>ITEM: A11 - REBUILD STONE MASONRY Dismantle and reconstruct tomb stone walls and above ground monuments. Harvesting, cleaning and re-setting of existing stones included.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER CUBIC FOOT</p>	40	C.F.	\$ _____
<p>ITEM: A12 - STONE CONSERVATION Conservation and repair of existing stones and plaques as described on drawings and in Section 04550.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM</p>	1	L.S.	\$ _____
<p>ITEM: A13 - TOMB TIEBACK INSTALLATION Install two tiebacks into the tomb headwalls and top of vault measured by the tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER TOMB</p>	1	TOMB	\$ _____
<p>ITEM: A14 - REPOINT BRICK VAULT Cut and point the brick joint-eroded tomb vault construction as needed, assume 50 square feet per tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER SQUARE FOOT</p>	50	S.F.	\$ _____
<p>ITEM: A15 - REBUILD BRICK VAULT Dismantle and reconstruct damaged brick tomb vault construction as needed measured by the gross square foot per wythe of exposed face. Harvesting, cleaning and replacement of existing bricks (preferred) or provision of new bricks included. Assume 10 square feet per tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER SQUARE FOOT</p>	10	S.F.	\$ _____

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
ITEM: A16 - REPLACE SLATE STAIR COVERS Replace broken slate stair covers. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER EACH LOCATION	1	E.A.	\$ _____
ITEM: A17 - ALL REMAINING AND INCIDENTAL WORK All remaining work to be performed by the lump sum as a non-measured item, including all temporary shoring and support, permits, trash disposal and all incidentals as well as all work indicated on the contract documents that are not described as unit cost items. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM	1	L.S.	\$ _____

TOTAL FOR ALL ALTERNATE #1 ITEMS: \$ _____

Perform the following under Alternate #2 as noted below and on drawings.

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
ITEM: A21 - REBUILD STONE MASONRY Dismantle and reconstruct tomb stone walls and above ground monuments. Harvesting, cleaning and re-setting of existing stones included. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER CUBIC FOOT	140	C.F.	\$ _____
ITEM: A22 - REBUILD BRICK MASONRY Dismantle and reconstruct tomb brick walls and above ground monuments measured by the gross square foot per wythe of exposed face. Harvesting, cleaning and replacement of existing bricks (preferred) or provision of new bricks included. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER SQUARE FOOT	120	S.F.	\$ _____

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
<p>ITEM: A23 - STONE CONSERVATION Conservation and repair of existing stones and plaques as described on drawings and in Section 04550.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER LUMP SUM</p>	1	L.S.	\$ _____
<p>ITEM: A24 - TOMB TIEBACK INSTALLATION Install two tiebacks into the tomb headwalls and top of vault measured by the tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER TOMB</p>	5	TOMB	\$ _____
<p>ITEM: A25 - REPOINT BRICK VAULT Cut and point the brick joint-eroded tomb vault construction as needed, assume 50 square feet per tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER SQUARE FOOT</p>	250	S.F.	\$ _____
<p>ITEM: A26 - REBUILD BRICK VAULT Dismantle and reconstruct damaged brick tomb vault construction as needed measured by the gross square foot per wythe of exposed face. Harvesting, cleaning and replacement of existing bricks (preferred) or provision of new bricks included. Assume 10 square feet per tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER SQUARE FOOT</p>	50	S.F.	\$ _____
<p>ITEM: A27 - REPLACE SLATE STAIR COVERS Replace broken slate stair covers.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER EACH LOCATION</p>	4	E.A.	\$ _____

BID ITEM SHEETS**PAGE 6**

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
ITEM: A28 - INSTALL NEW CAST IRON TOMB DOOR Install new cast iron tomb door covers as detailed. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER EACH LOCATION	1	E.A.	\$ _____
ITEM: A29 - ALL REMAINING AND INCIDENTAL WORK All remaining work to be performed by the lump sum as a non-measured item, including all temporary shoring and support, permits, trash disposal and all incidentals as well as all work indicated on the contract documents that are not described as unit cost items. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM	1	L.S.	\$ _____

TOTAL FOR ALL ALTERNATE #2 ITEMS: \$ _____

Perform the following under Alternate #3 as noted below and on drawings.

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
ITEM: A31 - REBUILD STONE MASONRY Dismantle and reconstruct tomb stone walls. Harvesting, cleaning and re-setting of existing stones included. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER CUBIC FOOT	305	C.F.	\$ _____
ITEM: A32 - REPOINT STONE MASONRY Cut and point stone masonry tomb walls. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER SQUARE FOOT	90	S.F.	\$ _____

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
<p>ITEM: A33 - TOMB TIEBACK INSTALLATION Install two tiebacks into the tomb headwalls and top of vault measured by the tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER TOMB</p>	5	TOMB	\$ _____
<p>ITEM: A34 - REPOINT BRICK VAULT Cut and point the joint-eroded brick tomb vault masonry as needed measured by the gross square foot, assume 50 square feet per tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER SQUARE FOOT</p>	150	S.F.	\$ _____
<p>ITEM: A35 - REBUILD BRICK VAULT Dismantle and reconstruct damaged brick tomb vault construction as needed measured by the gross square foot per wythe of exposed face. Harvesting, cleaning and replacement of existing bricks (preferred) or provision of new bricks included. Assume 10 square feet per tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER SQUARE FOOT</p>	30	S.F.	\$ _____
<p>ITEM: A36 - REPLACE SLATE STAIR COVERS Replace broken slate stair covers.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER EACH LOCATION</p>	2	E.A.	\$ _____
<p>ITEM: A37 - REBUILD STONE PERIMETER WALL Dismantle and reconstruct stone perimeter site wall. Harvesting, cleaning and re-setting of existing stones included.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER CUBIC FOOT</p>	20	C.F.	\$ _____

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
ITEM: A38 - ALL REMAINING AND INCIDENTAL WORK All remaining work to be performed by the lump sum as a non-measured item, including all temporary shoring and support, permits, trash disposal and all incidentals as well as all work indicated on the contract documents that are not described as unit cost items. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM	1	L.S.	\$ _____

TOTAL FOR ALL ALTERNATE #3 ITEMS: \$ _____

Perform the following under Alternate #4 as noted below and on drawings.

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
ITEM: A41 - REBUILD STONE MASONRY Dismantle and reconstruct tomb stone walls. Harvesting, cleaning and re-setting of existing stones included. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER CUBIC FOOT	250	C.F.	\$ _____
ITEM: A42 - STONE CONSERVATION Conserve and repair existing stones and plaques as described on drawings and in Section 04550. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM	1	L.S.	\$ _____
ITEM: A43 - REPOINT STONE MASONRY Cut and point stone masonry tomb walls. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER SQUARE FOOT	25	S.F.	\$ _____

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
<p>ITEM: A44 - TOMB TIEBACK INSTALLATION Install two tiebacks into the tomb headwalls and top of vault measured by the tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER TOMB</p>	2	TOMB	\$ _____
<p>ITEM: A45 - REPOINT BRICK VAULT Cut and point the joint-eroded brick tomb vault masonry as needed measured by the gross square foot, assume 50 square feet per tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER SQUARE FOOT</p>	200	S.F.	\$ _____
<p>ITEM: A46 - REBUILD BRICK VAULT Dismantle and reconstruct damaged brick tomb vault construction as needed measured by the gross square foot per wythe of exposed face. Harvesting, cleaning and replacement of existing bricks (preferred) or provision of new bricks included. Assume 10 square feet per tomb.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER SQUARE FOOT</p>	40	S.F.	\$ _____
<p>ITEM: A47 - REPLACE SLATE STAIR COVERS Replace broken slate stair covers.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER EACH LOCATION</p>	1	E.A.	\$ _____
<p>ITEM: A48 - INSTALL NEW CAST IRON TOMB DOOR Install new tomb door covers as detailed.</p> <p>THE SUM OF: _____ DOLLARS AND _____ CENTS</p> <p>(\$ _____) PER EACH LOCATION</p>	1	E.A.	\$ _____

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
ITEM: A49 - ALL REMAINING AND INCIDENTAL WORK All remaining work to be performed by the lump sum as a non-measured item, including all temporary shoring and support, permits, trash disposal and all incidentals as well as all work indicated on the contract documents that are not described as unit cost items. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM	1	L.S.	\$ _____

TOTAL FOR ALL ALTERNATE #4 ITEMS: \$ _____

Perform the following under Alternate #5 as noted below and on drawings.

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
ITEM: A51 - REBUILD STONE MASONRY Dismantle and reconstruct tomb stone walls. Harvesting, cleaning and re-setting of existing stones included. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER CUBIC FOOT	64	C.F.	\$ _____
ITEM: A52 - REBUILD BRICK MASONRY Dismantle and reconstruct tomb brick walls measured by the gross square foot per wythe of exposed face. Harvesting, cleaning and replacement of existing bricks (preferred) or provision of new bricks included. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER SQUARE FOOT	240	S.F.	\$ _____

ITEM DESCRIPTION & BID PRICE	ESTIMATED QUANTITIES	UNIT	TOTAL COST
ITEM: A53 - STONE CONSERVATION Conserve and repair existing stones and plaques as described on drawings and in Section 04550. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM	1	L.S.	\$ _____
ITEM: A54 - ALL REMAINING AND INCIDENTAL WORK All remaining work to be performed by the lump sum as a non-measured item, including all temporary shoring and support, permits, trash disposal and all incidentals as well as all work indicated on the contract documents that are not described as unit cost items. THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM	1	L.S.	\$ _____

TOTAL FOR ALTERNATE #5 ITEMS: \$ _____

TOTALS FOR THE BASE BID, ALTERNATE #1, ALTERNATE #2, ALTERNATE #3, ALTERNATE #4 AND ALTERNATE #5 MUST ALSO BE ENTERED IN "PARAGRAPH C" ON THE BID FORM.

END OF SECTION

CITY OF NEWTON

BIDDER'S QUALIFICATIONS AND REFERENCES FORM

All questions must be answered, and the data given must be clear and comprehensive. Please type or print legibly. If necessary, add additional sheet for starred items. This information will be utilized by the City of Newton for purposes of determining bidder responsiveness and responsibility with regard to the requirements and specifications of the Contract.

1. FIRM NAME: _____
2. WHEN ORGANIZED: _____
3. INCORPORATED? ☐ YES ☐ NO DATE AND STATE OF INCORPORATION: _____
- * 4. LIST ALL CONTRACTS CURRENTLY ON HAND, SHOWING CONTRACT AMOUNT AND ANTICIPATED DATE OF COMPLETION:

- * 5. HAVE YOU EVER FAILED TO COMPLETE A CONTRACT AWARDED TO YOU?
☐ YES ☐ NO
IF YES, WHERE AND WHY?

- * 6. HAVE YOU EVER DEFAULTED ON A CONTRACT? ☐ YES ☐ NO
IF YES, PROVIDE DETAILS.

- * 7. LIST YOUR VEHICLES/EQUIPMENT AVAILABLE FOR THIS CONTRACT:

- * 8. IN THE SPACES FOLLOWING, PROVIDE INFORMATION REGARDING CONTRACTS COMPLETED BY YOUR FIRM SIMILAR IN NATURE TO THE PROJECT BEING BID. A MINIMUM OF FOUR (4) CONTRACTS SHALL BE LISTED. PUBLICLY BID CONTRACTS ARE PREFERRED, BUT NOT MANDATORY.

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____

DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? ☐ YES ☐ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____)_____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? ☐ YES ☐ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____)_____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? ☐ YES ☐ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____)_____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? ☐ YES ☐ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____)_____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

9. The undersigned certifies that the information contained herein is complete and accurate and hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the City of Newton in verification of the recitals comprising this statement of Bidder's qualifications and experience.

DATE: _____ BIDDER: _____

SIGNATURE: _____

PRINTED NAME: _____ TITLE: _____

END OF SECTION

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word “person” shall mean any natural person, business, partnership, corporation, union, committee club, or other organization, entity, or group or individuals.

(Signature of individual)

Name of Business

CONTRACT FORMS

The awarded bidder will be required to complete and submit the following documents in order to execute a contract pursuant to this bid.

The forms are provided for informational purposes only.

None of the following forms are required at the time of bid submittal.

CITY-CONTRACTOR AGREEMENT

CONTRACT NO. C- _____

THIS AGREEMENT made this ____ day of _____ in the year Two Thousand and Eleven by and between the CITY OF NEWTON, a municipal corporation organized and existing under the laws of the Commonwealth of Massachusetts, hereinafter referred to as the CITY, acting through its Chief Procurement Officer, but without personal liability to him, and

hereinafter referred to as the CONTRACTOR.

The parties hereto for the consideration hereinafter set forth agree as follows:

ARTICLE 1. STATEMENT OF WORK. The Contractor shall furnish all labor, materials, and equipment and perform all work required in strict accordance with the Contract Documents for the following project:

HISTORIC NEWTON TOMB RESTORATION PROJECT

ARTICLE 2. TIME OF COMPLETION. The Contractor shall commence work under this Contract on the date specified in the written notice of the City to proceed and shall fully complete all work hereunder within the time specified in the Summary of Work and Specific Work Requirements of the Project Manual. Time is of the essence with regard to this contract. Failure to complete within the time specified shall be subject to the assessment of liquidated damages in accordance with the provisions contained in the Project Manual.

ARTICLE 3. THE CONTRACT PRICE. The City shall pay the Contractor for the full and satisfactory performance of the Contract a sum not to exceed:

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of the following documents which are either attached to this Agreement or are incorporated herein by reference:

- a. This CITY-CONTRACTOR Agreement;
- b. The City's Invitation For Bid #11-78 issued by the Purchasing Department;
- c. The Project Manual for Historic Newton Tomb Restoration Project including the Instructions to Bidders; General Conditions; Special Conditions; MWBE/AA Requirements, Wage Rate Requirements and Wage Rate Schedule(s) including any updated prevailing wage rate schedules if applicable; The Supplementary Special Conditions; General Requirements and Project Specifications; and Drawings, if included or referenced therein;
- d. Addenda Number(s)____ ;
- e. The Bid Response of the CONTRACTOR submitted for this Project and accompanying documents and certifications;
- f. Certificate(s) of Insurance and surety bond(s) submitted by the CONTRACTOR in connection with this Project;
- g. Duly authorized and executed Amendments, Change Orders or Work Orders issued by the CITY after execution of this CITY-CONTRACTOR Agreement.

This CITY-CONTRACTOR Agreement, together with the other documents enumerated in this Article, constitute the entire Agreement between the CITY and the CONTRACTOR.

ARTICLE 5. ALTERNATES. The following Alternates have been accepted and their costs are included in the Contract Price stated in Article 3 of this Agreement:

Alternates: _____

ARTICLE 6. APPLICABLE STATUTES. All applicable federal, state and local laws and regulations are incorporated herein by reference and the Contractor agrees to comply with same.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed under seal the day and year first above written.

CONTRACTOR

CITY OF NEWTON

By _____

Title _____

Date _____

Affix Corporate Seal Here

City funds in the amount of \$ _____
are available in account number
21B60302

I further certify that the Mayor, or his designee,
is authorized to execute contracts and
approve change orders

By _____
Comptroller of Accounts

Date _____

By _____

Chief Procurement Officer

Date _____

By _____

Museum Director

Date _____

By _____

Commissioner of Parks and Recreation

Date _____

Approved as to Legal Form and
Character

By _____

Associate City Solicitor

Date _____

CONTRACT AND BONDS APPROVED

By _____

Mayor or his designee

Date _____

CERTIFICATE OF AUTHORITY - CORPORATE

1. I hereby certify that I am the Clerk/Secretary of _____
(insert full name of Corporation)
2. corporation, and that _____
(insert the name of officer who signed the **contract and bonds.**)
3. is the duly elected _____
(insert the title of the officer in line 2)
4. of said corporation, and that on _____
(insert a date that is ***ON OR BEFORE*** the date the officer signed the **contract and bonds.**)

at a duly authorized meeting of the Board of Directors of said corporation, at which all the directors were present or waived notice, it was voted that

5. _____ the _____
(insert **name** from line 2) (insert **title** from line 3)

of this corporation be and hereby is authorized to execute contracts and bonds in the name and on behalf of said corporation, and affix its Corporate Seal thereto, and such execution of any contract of obligation in this corporation's name and on its behalf, with or without the Corporate Seal, shall be valid and binding upon this corporation; and that the above vote has not been amended or rescinded and remains in full force and effect as of the date set forth below.

6. ATTEST: _____ *AFFIX CORPORATE*
(Signature of **Clerk or Secretary**)* *SEAL HERE*
7. Name: _____
(Please print or type name in line 6)*
8. Date: _____
(insert a date that is ***ON OR AFTER*** the date the officer signed the **contract and bonds.**)

* The name and signature inserted in lines 6 & 7 **must** be that of the **Clerk or Secretary** of the corporation.

ATTESTATION

Pursuant to MG c. 62C, § 49A, the undersigned acting on behalf of the Contractor, certifies under the penalties of perjury that, to the best of the undersign's knowledge and belief, the Contractor is in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.*

**Signature of Individual
or Corporate Contractor (Mandatory)

*** Contractor's Social Security Number
(Voluntary) or Federal Identification Number

By: _____
Corporate Officer
(Mandatory, if applicable)

Date: _____

* The provision in the Attestation relating to child support applies only when the Contractor is an individual.

** Approval of a contract or other agreement will not be granted unless the applicant signs this certification clause.

*** Your social security number will be furnished to the Massachusetts Department of Revenue to determine whether you have met tax filing or tax payment obligations. Providers who fail to correct their non-filing or delinquency will not have a contract or other agreement issued, renewed, or extended. This request is made under the authority of GL c. 62C, § 49A.

CITY OF NEWTON, MASSACHUSETTS

PERFORMANCE BOND

Know All Men By These Presents:

That we, _____, as PRINCIPAL, and _____, as SURETY, are held and firmly bound unto the City of Newton as Obligee, in the sum of _____ dollars (\$_____) to be paid to the Obligee, for which payments well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the said PRINCIPAL has made a contract with the Obligee, bearing the date of _____, 2011 for the construction of _____ in Newton, Massachusetts.
(Project Title)

Now, the condition of this obligation is such that if the PRINCIPAL and all Sub-contractors under said contract shall well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of said contract on its part to be kept and performed during the original term of said contract and any extensions thereof that may be granted by the Obligee, with or without notice to the SURETY, and during the life and any guarantee required under the contract, and shall also well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of any and all duly authorized modifications, alterations, changes or additions to said contract that may hereafter be made, notice to the SURETY of such modifications, alterations, changes or additions being hereby waived, then this obligation shall become null and void; otherwise, it shall remain in full force, virtue and effect.

In the event, that the contract is abandoned by the PRINCIPAL, or in the event that the Obligee terminates the employment of the PRINCIPAL or the authority of the PRINCIPAL to continue the work said SURETY hereby further agrees that said SURETY shall, if requested in writing by the Obligee, take such action as is necessary to complete said contract.

In Witness Whereof, the PRINCIPAL and SURETY have hereto set their hands and seals this ____day of _____ 2011.

PRINCIPAL

SURETY

BY _____

BY _____

(SEAL)

(ATTORNEY-IN-FACT) (SEAL)

(Title)

ATTEST: _____

ATTEST: _____

CITY OF NEWTON, MASSACHUSETTS

PAYMENT BOND

Know All Men By These Presents:

That we, _____, as PRINCIPAL, and _____, as SURETY, are held and firmly bound unto the City of Newton as Obligee, in the sum of dollars (\$_____) to be paid to the Obligee, for which payments well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the said PRINCIPAL has made a contract with the Obligee, bearing the date of _____, 2011, for the construction of _____ in Newton, Massachusetts.
(Project Title)

Now, the conditions of this obligation are such that if the PRINCIPAL and all Sub-contractors under said contract shall pay for all labor performed or furnished and for all materials used or employed in said contract and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said contract that may hereafter be made, notice to the SURETY of such modifications, alterations, extensions of time, changes or additions being hereby waived, the foregoing to include any other purposes or items set out in, and to be subject to, provisions of M.G.L. c. 30, sec. 39A, and M.G.L. c. 149 sec. 29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force, virtue and effect.

In Witness Whereof, the PRINCIPAL and SURETY have hereto set their hands and seals this ____day of____,2011.

PRINCIPAL

SURETY

BY _____

BY _____

(SEAL)

(ATTORNEY-IN-FACT) (SEAL)

(Title)

ATTEST: _____

ATTEST: _____

CITY OF NEWTON

GENERAL CONDITIONS OF THE CONTRACT

FOR PUBLIC WORKS CONSTRUCTION

ARTICLE 1

Refer to attached contract drawings totaling 22 pages.

ARTICLE 2

Definitions

The word "Director" shall mean the official duly authorized to act for the City of Newton in the execution of the work of this contract, acting directly or through properly authorized agents.

The word "Engineer," or "City Engineer," shall mean the City Engineer of the City of Newton, acting directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

The word "Contractor" shall mean the party or parties contracting to perform the work covered by this contract or his, or their, legal representatives, successors or assigns.

The word "Plan" shall mean plans referred to and included in the Project Manual for this contract. The word "City" shall mean the City of Newton.

ARTICLE 3

Plans, Drawings, Profiles

1. The work shall be done in accordance with plans referred to in Article 1 and such further working and detail plans, drawings and profiles as may be furnished from time to time by the Engineer. All said plans, general and detail, are to be deemed a part of this contract, and the said plans, specifications and contract are to be considered together, so that any work mentioned in the contract, though not shown on the plans, and any work shown on the plans though not mentioned in the contract, is to be executed by the Contractor as a part of this contract. Figured dimensions are to prevail over scale. All things which in the opinion of the Engineer may fairly be inferred from the contract, plans and specifications, are to be executed by the Contractor as a part of the contract; and the Engineer shall be sole judge as to whether detail plans, drawings and profiles conform to the general plans and the contract.

Discrepancy in Plans

2. The Contractor shall carefully examine all said plans, profiles, drawings, specifications and orders; all figures, dimensions, lines, marks and scales thereof, and all directions of the Commissioner and the Engineer relating to the work, and conform to those in relation to which there is no doubt or discrepancy, but at once submit all cases of doubt or discrepancy to the Engineer for adjustment. Anything done on any part of the work for which special information or drawing should be procured, unless done in accordance with such information or drawing, or anything done in relation to which there is doubt or discrepancy, except in accordance with the adjustment thereof, or done in violation of law or public authority, is to be redone if the Commissioner shall so direct.

ARTICLE 4

Inspection

1. The Contractor in carrying on the contract shall conform to all determinations and directions of the Engineer relating to the proper interpretation of the plans, specifications, profiles or drawings, the fitness of persons employed on the work or the number thereof, or the suitability, amount, quality, and value of anything done or any materials used, and the Contractor shall permit the Commissioner and the Engineer and persons designated by them to enter upon the work and inspect the same at all times and in all places, and shall provide safe and convenient facilities for making such entry and inspection.

ARTICLE 5
Change in Plans and Work

1. The City, acting through the Commissioner and upon his written order only, from time to time given to the Contractor or his foreman, may change, increase or take away any part of the work, or change the specifications, plans, drawings, form or materials thereof. Any deduction or addition thereto is to be allowed, or paid for at a price to be determined, within not more than 15 days of the completion of the change, by the City Engineer acting in the same capacity as an architect in a building contract as between owner and contractor. Any demand for addition or deduction must be made in writing to the City Engineer within seven (7) days of the time change was ordered.

ARTICLE 6
Time and Manner of Doing the work - Beginning and Completion

1. The Contractor shall begin work upon receipt of written Notice to Proceed. Once begun the work shall be carried out in a continuous and uninterrupted fashion with sufficient workforce and resources to assure completion by the date for completion established by the Contract Documents.

2. The Contractor shall carry on the work in accordance with the requirements of law and of all other public authorities, and to the satisfaction of the Commissioner; he shall give all notices, take out all permits, pay all charges and fees, give personal supervision to the work and keep thereon a competent foreman and sufficient employees, skilled in the several parts which are given them to do.

Maintenance of Travel

3. The Contractor shall conduct his work so as to interfere as little as possible with public travel, and shall give property owners proper means of access to their property where existing access has been cut off by the work. The Contractor shall keep the streets open for through travel except where, in the opinion of the Commissioner, it is necessary to close the street. The continuous length of the street occupied for the work shall be kept as short as possible, and no part of the work shall be unnecessarily delayed. Wherever the Commissioner shall direct, trenches shall be bridged by the Contractor in a proper and secure manner so as not to interrupt travel. Free access shall be maintained at all times to all water gates, gas gates, and fire hydrants.

Abandonment of Work by Contractor

4. In the event the City Engineer certifies to the Commissioner that the work is not being so carried forward or if the Contractor at any time is not carrying on the work to the satisfaction of the Commissioner, or is not observing any of the provisions of the contract, or has abandoned the work, or become insolvent or assigned his property, the City, acting by the Commissioner and at his discretion, may, with or without notice to the Contractor, or advertising for doing the work, and by contract, day labor or otherwise, do any part of the work which the Contractor has failed to do or replace any part not done to the satisfaction of the Commissioner, or take possession of the work and complete the same, and in doing so may use any implements, machinery or materials on or about the work which are the property of the Contractor, charging the Contractor any excess cost for completing the work, which excess cost the Contractor agrees to pay.

ARTICLE 6A
Liquidated Damages

1. In case the work embraced in the contract shall not have been completed by the date stipulated therein, the Contractor shall pay to the City of Newton as liquidated damages a designated sum per calendar day for the entire period of overrun in accordance with the following Schedule of Deductions, and in addition, the Contractor shall pay without reimbursement the entire cost of all traffic officers, railroad flagmen, inspectors, or other personnel the City Engineer and/or the Chief Engineer of the railroad determines to be necessary during the period of overrun of time.

SCHEDULE OF DEDUCTIONS

<u>Original Contract Amount</u>		<u>Daily Charge</u>
<u>From More Than</u>	<u>To and Including</u>	<u>Per Calendar Day</u>
\$ 0.	\$ 25,000.	\$ 30.
25,000.	50,000.	50.
50,000.	100,000	100.
500,000.	1,000,000.	150.
1,000,000.	2,000,000.	200.
2,000,000.	—	300.

2. Whatever sum of money may become due and payable to the City of Newton by the Contractor under this Article may be retained out of money belonging to the Contractor in the hands and possession of the City of Newton. It is agreed that this Article shall be construed and treated by the parties to the contract not as imposing a penalty upon said Contractor for failing fully to complete said work as agreed on or before the time specified in the proposal, but as liquidated damages to compensate said City of Newton for all additional costs incurred by it because of the failure of the Contractor fully to complete said work on or before the date of completion specified in the proposal.

ARTICLE 6B

Delays and Extensions of Time

1. If the Contractor is delayed at any time in the progress of the work by an act or neglect of the City, or by changes in the work ordered by the City, or by unseasonably inclement weather, or by other causes deemed by the City Engineer to be beyond the Contractor's control, and which the City Engineer determines may justify delay, then the time for completion may be extended for such reasonable time as the City Engineer may determine.

2. No such extension of time will be allowed unless the Contractor submits a written request for an extension to the City Engineer no later than 10 calendar days of the start of the occurrence or event giving rise thereto. Each such request must describe the occurrence or event and specify the manner and extent that such occurrence or event is causing or has caused a delay in the work. The City Engineer shall promptly investigate each request and make his written determination to the Commissioner and the Contractor within 10 days after receipt of the request. In his determination the City Engineer may either grant, deny, or modify the length of the requested extension.

3. If the City Engineer's determination so warrants, the Commissioner shall authorize a written Change Order to the Contract extending the time for completion. No extension of time shall be deemed as granted until said Change Order has been duly executed by the parties.

4. Change Orders which may be executed by the City and the Contractor in connection with additions, extra labor and/or extra materials shall not be considered as allowing extensions of the time for completion unless the change order expressly specifies that additional time is allowed in connection with the work under the change order. Once a Change Order has been executed by the parties, any request by the Contractor for an extension of time based solely on the fact that additions, extra labor and/or extra materials are required by the Change Order will be denied by the City Engineer.

5. Permitting the Contractor to continue and finish the work or any part of it after the times fixed for its completion, or after the date to which the time for completion may have been extended, shall in no way operate as a waiver on the part of the City of Newton of any of its rights under the contract. The Contractor remains liable for damages caused other than by delay.

ARTICLE 7

Lines and Grades

1. The Contractor shall retain a Registered Land Surveyor who shall furnish such boards and stakes and cause to be placed thereon, such lines, marks and directions relating to the work as the Commissioner or City Engineer shall from time to time direct.

ARTICLE 8

Public Service Pipes and Conduits

1. The Contractor shall maintain such pipes or conduits of public service corporations or of the City as are across or within the lines of the work until such time as said public service corporations or the City assume the maintenance or removal of said pipes or conduits. The Commissioner will notify such public service corporations to that effect on the existence of such obstructions to the work being brought to his notice by the Contractor. The City will relocate either temporarily or permanently all water mains and water service pipes, or hydrants, and drains or sewers which may interfere with the work contemplated in this contract. (This clause is not to be construed as applying to such pipes as may be readily supported and protected during the progress of the work.) The cost of shutting off and turning on water in water mains during blasting shall be assumed by the City.

Protection of Existing Structures

2. All existing gas pipes, water pipes, sewers, drains, conduits, or other structures which are uncovered by the excavation shall be carefully supported and protected from injury by the Contractor, and, in case of injury, they shall be restored by him, without compensation therefor, to as good condition as that in which they were found, and shall be kept in repair until 6 months after the completion of the work. The Contractor shall provide suitable temporary channels for water at all water courses. Wherever the work passes under or adjacent to street railway tracks, the Contractor shall make all necessary arrangements with the railway company for doing any work which may affect the property of the company or interfere with the operating of the railway, and he shall be liable for any damage that may be caused by any act, omission or neglect on his part, and shall pay all expenses of every kind incidental to this work.

Changing the Location of Existing Structures

3. Whenever it becomes necessary to change the location of any water or gas pipes, sewers, drains, conduits or other structures not otherwise provided for in these specifications, the Contractor shall do the whole or such portions of the work of making such changes as the Commissioner may require, and shall receive in payment therefor the reasonable cost of the work done as determined by the Commissioner plus 15 per cent of such cost. In estimating such cost, no allowance shall be made to the Contractor for the use of tools not especially provided for this work, for general superintendence, or for any overhead expenses except liability insurance.

ARTICLE 9

Co-operation with Other Contractors

1. The Contractor shall conduct the work in such manner as not to interfere with other work being done by the City, by contract or otherwise, and if deemed necessary by the Commissioner, the work under this contract shall conform to the progress of said other work; shall co-operate with other contractors or employees who may be doing work for the City, and with public service corporations affected by the work, in arranging for storage places, connections, bracings, temporary support for structures, repairs, etc.

ARTICLE 10

Subcontracts

1. The Contractor, in any contract with a Subcontractor, shall provide that the Subcontractor shall be subject to all specifications, terms, provisions, conditions, requirements and liabilities set forth in this contract so far as such specifications, terms, provisions, conditions, requirements and liabilities are applicable to the work to be done under such Subcontract, and shall also provide that such Subcontract shall be terminated by the Contractor whenever the Commissioner shall certify to him in writing that in his opinion the work of the Subcontractor is unnecessarily or unreasonably delayed or that the Subcontractor has violated any of the provisions of this contract. The Contractor shall at once terminate such subcontract if the Commissioner, after certifying as aforesaid, shall in writing direct the Contractor to make such termination.

2. Subcontracts shall be made in writing and the Contractor shall furnish the Commissioner with a copy of his subcontracts on demand.

3. Pursuant to the provisions of M.G.L. Ch. 30, Sec. 39F (1), the following provisions are included in the General Conditions:

(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring the payment and also less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of the subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included

in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority, the demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of the completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after which the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work (ii) specified in any court proceedings barring such payment, or, (iii) if the reply shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

(h) The awarding authority shall deduct from payments to a general contractor amounts which, together with deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.

ARTICLE 11

Compensation for Work

1. Subject to any provisions in Paragraph 7, the price named in the proposal and accepted by the City shall be paid by the City and received by the Contractor as full compensation for furnishing materials and for use of tools, forms, machinery and other implements, and for labor in moving materials and executing all the work contemplated in this contract, also for loss or damage arising from delay however occasioned, or out of the nature of the work aforesaid or from the action of the elements, from floods, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same and for all risks of every description connected with the work and for well and faithfully completing the work in the proper manner and according to the plans and specifications and requirements of the Commissioner under them.

2. During the first week of each calendar month, the City Engineer shall cause all work done by the Contractor during the previous month to be measured and shall estimate the value thereof and, on or before the 10th of each month issue a certificate to the Commissioner of the measurements and the amount due the Contractor according to the terms of his contract.

3. The City shall pay the Contractor on approval of the Commissioner monthly on or before the 18th of each month for all work done during the preceding month according to the aforementioned certificate of the City Engineer, less 5 per cent of the amount of such work and less any amounts due the City by the Contractor.

4. Within ten days after the completion of the work as determined by the Commissioner, the City Engineer shall issue to the Commissioner a final certificate of the total amount of work done and the money due the Contractor therefor, crediting thereon the amounts of the previous payments. In making the final certificate, the City Engineer shall not be bound by any preceding certificate or estimate of the amount of work done or materials furnished.

Final Payment--Claims Against Contractor

5. At the expiration of 65 days after the completion of the work as determined by the Commissioner, the City shall, unless claims are made or notice of liability against the City is given, pay the Contractor, on the approval of the Commissioner, the percentages retained and the balance due the Contractor according to the aforementioned final certificate of the City Engineer less any indebtedness of the Contractor to the City. If a claim or claims are made, or notice of liability given, such amounts due the Contractor may be paid upon satisfaction of such claims or upon furnishing of indemnity to said City against all loss, cost, damage or expense by reason of such claims. In the event of no known claims or liens the City may, at its option, pay within 35 days.

6. The City, on making any payment after the completion of the work, shall be released from all claim or liability to the Contractor for anything done or used, or for any loss or injury sustained in carrying on the contract, or for any act, omission, neglect or mistake of the City or any person relating to or affecting the contract, except for the balance of any sum retained as aforesaid.

Extra Work

7. The Contractor shall be paid for any additions, or deductions as provided in Article 5, paragraph 1, and for extra labor done by, and for extra materials furnished by him in compliance with the written order only of the Commissioner, calling for work not similar in character to that covered by the items given in the proposal, and for which no price is set in the said written order, the direct (not including consequential) cost to the Contractor, as determined to be reasonable by the Commissioner, plus fifteen per cent of said costs as so determined in regard to labor only. For teams or trucks so furnished, no payment shall be made to the Contractor beyond the current local rate as determined by the Commissioner in each case. The direct cost of labor may include the cost of mechanics and laborers furnished and a reasonable proportion of the time of the foreman and timekeeper, but it shall in no case include any charge for the use of tools, for establishment charges or for time spent by the Contractor. The actual cost of insurance on extra pay rolls and of materials furnished for extra work, shall be paid without any addition. The labor and materials so ordered shall constitute a part of the work to be done under the contract; and all and singular the provisions of the contract shall apply to said labor and materials as if the same were specified therein. The Contractor shall have no claim for the above mentioned extra labor and materials unless he furnishes the details and bills therefor within one week after doing any such labor or furnishing any such materials.

8. No claim of the Contractor against the City under this contract shall be deemed valid unless such claim is presented to the Commissioner within ten days from the time when the Contractor first knows of, or has opportunity to know of, the acts and circumstances on which such claim is based.

9. A payment or payments to the Contractor, in cases where these provisions or any of them, are not complied with, shall not be construed as a waiver of said provisions or any part thereof.

Contract Made Subject to Appropriations

10. This contract is made subject to appropriation heretofore made and shall not be altered unless the Contractor, the sureties on the bond, if any, the officer making the contract and the Mayor shall in writing agree thereto.

ARTICLE 12

Responsibility for Work--Contractor's Responsibility

1. The Contractor has made his proposal from his own examinations and estimates, and shall not hold the City, its agents, or employees, responsible for or bound by, any schedule, estimate, sounding, boring, or any plan of any part of the work; shall, if any error in any plan, drawing, specification or direction relating to anything to be done under the contract come to his knowledge, report it at once to the Commissioner; shall not, except as the Commissioner shall authorize in writing, assign or sublet any part of the contract except for the supply of materials and plant, or of anything to be done thereunder; shall, subject to the provisions of the contract take all responsibility of, and bear all losses resulting to him in carrying on the contract, and shall assume the defense of, and hold the City, its agents and employees harmless from all suits and claims against them, or any of

them, arising from the use of any invention, patent or patent right, material, labor or implement, by or from any act or omission or neglect of the Contractor, his Subcontractor, his agents or employees, in carrying on the contract, or for any liability of any nature arising under the contract. The Contractor shall be solely responsible and liable for, and shall fully protect and indemnify the City against all claims for damages to persons or property occasioned by or resulting from blasting or other methods or processes in the work of construction, whether such damages be attributable to negligence of the Contractor, his employees or his Subcontractor or otherwise.

ARTICLE 13

LIGHTS--GUARDS

1. The Contractor shall assume all responsibilities of the work and take all proper precautions to protect persons and property from injury and unnecessary interference; leave a reasonably unobstructed way along public and private places for pedestrians, teams, and vehicles, and for access to hydrants; provide proper walks over or around any obstruction made in a public or private place in carrying on the contract, and maintain from the beginning of twilight through the whole of every night, on or near the obstruction sufficient lights and guards to protect travelers from injury thereby, and if, after one notification from the Commissioner that said lights and guards are not sufficient, the Contractor has not placed additional lights and guards to the satisfaction of the Commissioner, the Commissioner shall have the right to take charge of that part of the work at the expense of the Contractor. While the work is suspended he shall keep all roadways and sidewalks in proper condition, and when the work is completed put the place and vicinity in proper condition and so leave them.

The Contractor shall provide proper means of access to property where the existing access is cut off by the Contractor and replace or put in good condition every conduit, catch-basin, tree, wall, fence, or other thing injured by the Contractor in carrying on the contract, unless the same has been permanently done away with, on approval of the Commissioner, as being necessary to the proper carrying on of the contract.

ARTICLE 14

Guaranty

1. Any settlement or other defect, or the failure of any part of the structure or the work due to defective materials or workmanship, that occurs within one year after the work is completed, is to be immediately repaired by the Contractor. In the event of any such settlement, defect, or failure causing liability to the City for damage to persons or property, the Contractor does by this clause agree to hold the City harmless and to assume the defense of any claims therefor.

2. Responsibility under this guaranty for the adequacy of the work does not relieve the Contractor of his obligation to comply with the terms of the contract and to conform to all the requirements of the plans and specifications, nor does it give him the right to deviate in any way from the details of design of the structure or the work.

ARTICLE 15

Defective Work and Materials

1. The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill his contract as herein described, and defective work shall be made good and unsuitable materials may be rejected, notwithstanding that such work and materials have been previously overlooked by the Engineer and accepted or estimated for payment. If the work or materials, or any part thereof shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good such defect in a manner satisfactory to the Engineer, and if any material brought upon the ground for use in the work or selected for the same, shall be condemned by the Engineer as unsuitable or not in conformity with the specifications, the Contractor shall forthwith remove such materials from the vicinity of the work. Nothing in this contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil, but all materials shall, upon being so attached or affixed, become the property of the City of Newton.

ARTICLE 16

Employment of Labor

1. The Contractor shall give preference in employment, first to citizens of Massachusetts, second, to other citizens of the United States; and shall allow all employees on said work to lodge, board and trade where they choose, and shall not obstruct any other person in doing work for the City; and shall conform to all labor laws of the Commonwealth; and no laborer or teamster, workman or mechanic working within this Commonwealth in the employ of the Contractor or Subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by the Contractor shall be requested to, or required to, or work more than eight hours in any one calendar day. This contract is subject to all the laws of the Commonwealth, and ordinances of the City and if any clause thereof does not conform to such laws and ordinances, such clause shall be void and such laws and ordinances operated in lieu thereof.

ARTICLE 17
Laws and Regulations--Contractor to Comply with Law

1. The Contractor shall keep fully informed of all existing or future acts of the legislature, and of all municipal ordinances, prohibitions, rules and regulations in any manner affecting the conduct of the work, and of all orders or decrees of any body or tribunal having any jurisdiction or authority over the materials, times, places and actions of those employed in the work embraced in the contract. The Contractor shall at all times observe and comply with all existing and future acts, ordinances, prohibitions, rules, regulations, orders and decrees; and shall protect and indemnify the city and its employees against any and all claims arising from or based on any violation of such acts, ordinances, prohibitions, rules, regulations, orders or decrees, and against all violations of law by the Contractor or his agents or employees.

END OF SECTION

**CITY OF NEWTON
MINORITY/ WOMEN BUSINESS ENTERPRISE PLAN
DECEMBER 1, 1999
JANUARY 21, 2010 revised**

STATEMENT OF POLICY:

Whereas it is the policy of the government of the United States of America, the Commonwealth of Massachusetts and the City of Newton that no person shall be discriminated against in any manner whatsoever on the grounds of race, religion, color, sex, handicap or national origin; and

Whereas, it is the policy of the government of the United States of America that no person shall, on the grounds of race, color, sex or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program of activity funded entirely or in part by the City, the State or Federal government; and

Whereas, it is the policy of the government of the United States of America to encourage that Minority/Women Business Enterprises shall have the maximum practicable opportunity to participate in Federal and State assisted projects; and all City funded contracts; and

Whereas, it is the policy of the City of Newton to encourage that minority/women business enterprises shall have the maximum practicable opportunity to participate in all City funded contracts; and

Whereas, the City of Newton, as a recipient of Federal and State funds subscribes to the above policies and will fully comply With Federal, State and local laws and directives governing non-discrimination, equal opportunity and affirmative action in all municipal activities; and

Whereas, to further enunciate the equal opportunity policy of the City of Newton's Minority/Women Business Program, the following responsibilities are specified

This MINORITY/ WOMEN Business Enterprise Plan sets forth the administrative standards for the further implementation of the City of Newton's policy of the utilization of minority contractors and subcontractors.

The City of Newton strongly affirms that it will not discriminate in any contractual procedures against any persons because of race, color, religion, age, disability, sex or national origin. This policy shall be administered with a positive supportive attitude.

It is the responsibility of the City of Newton to take affirmative steps to implement this policy to insure equality of opportunity in conducting the Program including notifying those persons and businesses doing business with the City, that contracts for goods, services and construction, shall be made Without reference or regard to race, color, sex, age, handicap, religion or national origin.

Setti D. Warren Mayor

CITY OF NEWTON
MINORITY/ WOMEN BUSINESS ENTERPRISE PLAN
JANUARY 21, 2010

I. **DEFINITIONS:**

- A. **Minority Person**- the term includes a person who is of Black Hispanic, Asian, American Indian or Cape Verdean origin.
- B. **Minority Business Enterprise (MBE)** -- the term shall mean a business a) that is certified by SOMWBA; or b) provides evidence satisfactory to the City's Affirmative Action Officer that it is a business owned or controlled by one or more of the following:
- an individual who is a minority person,
 - a partnership or joint venture controlled by minority persons in which at least 51 % of the ownership interest is held by minority persons or,
 - a corporation or other entity controlled by minority persons and in which at least 51 % of the stock is owned by one or more minority persons.
- C. **Contract Compliance Officer** - the Chief Procurement Officer or his/her designee responsible for the implementation of Newton's Minority/Women Enterprise Plan ("MWBE Plan") and activities.
- D. **MCAD** - Massachusetts Commission Against Discrimination.
- E. **SOMWBA** -- State Office of Minority/Women Business Assistance,
- F. **City** - The City of Newton.
- G. **Women Business Enterprise (WBE)** - the term shall mean a business a) that is certified by SOMWBA; or b) provides evidence satisfactory to the City's Affirmative Action Officer that it is a business owned or controlled by one or more of the following:
- an individual who is a woman.
 - a partnership or joint venture controlled by women in which at least 51% of the ownership interest is held by women, or
 - a corporation or other entity controlled by women and in which at least 51% of the stock is owned by one or more women.
- H. **MWBE** — Minority or Women Business Enterprise

II. **GOALS:**

Newton's Minority/Women Enterprise Plan ("MWBE Plan") shall be guided by the goals presented below to promote minority/women opportunities within the City.

These goals comprise the framework for those activities to be implemented as part of the MWBE Plan:

To take affirmative action in expanding opportunities for minority and women owned firms in obtaining contracts within the City of Newton.

To assure that all contractors, regardless of race color, religion, creed, national origin, sex, age, ancestry or handicap, shall have equal opportunity to City contracting activities.

To award, of the total annual City contract dollars expended, 10 percent to MBE and 5 percent to WBE for construction; for goods and services, 5 percent WBE and 5 percent MBE.

III. SOLICITATION ACTIVITIES:

To notify MWBEs of upcoming contracts for construction, professional services and supplies, funded in whole or in part with Federal, State, and City funds, the following activities will be undertaken. In addition on a regular basis, the City of Newton will distribute to its listing of MWBEs and SOMWBA, a summary of upcoming contract opportunities which are subject to the City's MWBE Plan.

A. Construction Contracts

All construction contracts with an estimated value over \$50,000 will be formally advertised within local, regional, minority and special interest publications at least 14 days prior to the bid opening date.

For all such construction contracts a "Notice of Solicitation" of a project going out to bid will be distributed to appropriate SOMWBA or City certified firms at least 14 days prior to the bid opening date.

B. Contracts for Professional Services

The City of Newton will send notification of its advertised Request for Proposals to appropriate! SOMWBA or City certified firms Responding MWBE firms will be considered for contract award within the bounds of generally accepted management practice or with the applicable procurement law relating to securing the lowest cost and best services available.

C. Procurement of Supplies

The City of Newton will (where feasible) utilize MWBEs for the procurement of supplies in accordance with City purchasing procedures. These efforts will be documented and reported to MCAD, and the Mayor's office on a quarterly basis.

IV. CONSTRUCTION ACTIVITIES:

A. Goals

The City of Newton bid documents and contracts with an estimated value over \$50,000 will contain the City's goal of 10% for MBE and 5% for WBE utilization for subcontracts,

B. Pre-Bid Conference

To affirmatively further the opportunities available to prospective bidders, the City will hold a pre-bid conference 5-7 days prior to the bid opening date for all City construction contracts and subcontracts with an estimated value over \$50,000.

The pre-bid conference will provide an opportunity for contractors to: review and clarify the technical requirements of the projects, review the City's MWBE Plan; and review Equal Opportunity requirements. The City will advertise this conference and extend invitations to interested contractors as part of the notice of solicitation.

C. Bid Submission

All bids for City of Newton contracts with -an estimated value over \$50,000 shall include a certification of intent to be completed by the bidder swing his/her intent to comply with the City's MWBE Plan. Failure to include this certification shall be an informality which may be waived if such certification is received prior to the award of the contract.

D. Contract Execution

Upon notification of award of the contract, the bidder shall provide a written plan detailing how it will comply with the MWBE Plan

E. Monitoring

Throughout the duration of the contract, the City of Newton through its Contract Compliance Officer, will monitor the progress and activities of all contractors and subcontractors as they attempt to comply with the MWBE Plan.

F. Enforcement

In the case of clear neglect to make a good faith effort to comply with this MWBE Plan, the City of Newton reserves the right to designate contractor, after a hearing, as ineligible for future City bid awards.

V. CONTRACT COMPLIANCE OFFICER/DUTIES AND RESPONSIBILITIES:

The Contract Compliance Officer, as liaison between minority firms and the City of Newton will have the overall responsibility for the implementation of Newton's MWBE Plan. This responsibility includes the development, management, dissemination of information; the provision of technical assistance to minority firms including clarification of procedures to be implemented; maintenance of relevant documentation; completion of reporting requirements; and performance of monitoring and evaluation activities; and maintenance and updating of listings of minority/women business.

The Contract Compliance Officer has oversight of all City procurements for construction, professional services and supplies and shall coordinate the implementation of the MWBE Plan with other City departments.

THE CITY OF NEWTON, MASSACHUSETTS
SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY
ANTI-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM

- I. The requirements hereinafter set forth apply to construction contracts which involve an expenditure by the City of \$50,000 or more.
- II. For purposes of this contract "minority" refers to Asian Americans, Black, Hispanics American Indians and Cape Verdeans. The City refers to the- City of Newton
- III. During the performance of this contract the Contractor and all of (his) Subcontractors (hereinafter collectively referred to as the Contractor) , for himself, his assignees, and successors ,in interest, agree as follows:
 1. In connection with the performance of work under this contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age or sex. The aforesaid provision shall include, but not be limited to, the following: layoff; termination; rates of pay or other forms of compensation; conditions or privileges of employment; and the selection of apprenticeship. The Contractor shall post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the City setting forth the provisions of the Fair Employment Practices Law of the Commonwealth (MGL Chapter 151B) . (See Attachment A)
 2. In connection with the performance of work under this contract, the Contractor shall undertake in good faith, affirmative action measures designed to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, age or sex, and to eliminate and remedy any effects of such discrimination -in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal employment: opportunity in the areas of hiring, upgrading, demotion or transfer, recruitment, 'Layoff or termination, rate of compensation, and in-service or apprenticeship training programs. This affirmative action shall include all action required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, age or sex. A 'purpose of- this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for this and future City public construction projects
- IV.
 1. As part of this obligation of remedial action under the foregoing section, the contractor shall maintain on this project a not less than 5 percent ratio of minority employee man hours to total man hours in each job category, including, but not limited to, bricklayers, carpenters, cement masons, electricians, ironworkers, operating engineers, and those "classes of work" enumerated in Section 44C of Chapter 149 of the Massachusetts General Laws.
 2. In the hiring of minority journeymen, apprentices, trainees and advanced trainees, the Contractor shall rely on referrals, from the Contractor's affirmative action program approved by the City, traditional referral methods utilized by the construction industry, and referrals from agencies, not more than three in number at any one Time, designated by the Liaison Committee or the City.
- V.
 1. At the discretion of the City, there may be established for the life of this contract a body to be known as the Liaison Committee, The Liaison Committee shall be composed of the Compliance Officer and one representative each from the Departments administering this project, hereinafter called the administering Departments, and such other representatives as may be designated by the City.
 2. The Contractor (or, his/her agent, if any, designated by him/her as the onsite equal employment opportunity officer) shall recognize the Liaison Committee as the affirmative action body, and shall establish a continuing working relationship with the Liaison Committee on all matters related to minority recruitment, referral, employment and training.
 3. The Contractor shall prepare manning tables on a quarterly basis.* These shall be broken down into projections, by week, for workers required in each trade. Copies shall be furnished one week in advance of the initiation of work and quarterly thereafter to the City and to the Liaison Committee.
 4. Records of employment referral orders, prepared by the Contractor, shall be made available to the City and to the Liaison Committee on request.

5. The contractor shall prepare weekly reports in a form approved by the City of hours worked in each trade by each employee, identified as minority or non-minority. Copies of these reports shall be provided at the end of each week to the City and to the Liaison Committee.

* If job is less than three months, prepare for length of job.

- VI. If the Contractor shall use any sub contractor on any work performed under this contract, he/she shall take affirmative action to negotiate with qualified minority subcontractors. This affirmative action shall cover both pre-bid and post-bid periods. It shall include notification to the State Office of: Minority *Business Assistance* or As designee, while bids are in preparation, of all products, work or services for which the Contractor intends to negotiate bids.
- VII. In the employment of journeyman, apprentices, trainees, and advanced trainees, the Contractor shall give preference to citizens of the Commonwealth who have served in the armed forces of the United States in time of war and have been honorably discharged therefrom or released from active duty therein, and who are qualified to perform the work to which the employment relates, and, secondly to citizens of the Commonwealth generally, and, if such cannot be obtained in sufficient numbers, then to citizens of the United States
- VIII. A designee of the City and a designee of the Liaison Committee shall each have the right of access to the Construction site,
- IX. **Compliance with Requirements**
The Contractor shall comply with the provisions of Chapter 151B of the Massachusetts General Laws, which are herein incorporated by reference and made as amended by Executive Order 227, and of Chapter 151B as amended, of the Massachusetts General Laws, both of which are herein incorporated by reference and made a part of this contract.
- X. **Non-Discrimination**
The Contractor, in the performance of all work after award, and prior to completion of the contract work, will not discriminate on the grounds of race, color, religious creed, national origin, age or sex in employment practices, in the selection or retention of sub-contractors, or in the procurement of materials and rentals of equipment.
- XI. **Solicitations for sub-Contracts and for the Procurement of Materials and Equipment**
In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or equipment, each potential subcontractor or supplier shall be notified in writing by the Contractor of the Contractor's obligations under his contract relative to non-discrimination and affirmative action.
- XII. **Bidders Certification Requirement**
 1. The following certification statement will be inserted in the bid document just above the bidder's signature.

"The bidder hereby certifies he shall comply with the minority manpower ratio and specific action steps contained in the City of Newton, Massachusetts Supplemental Equal Employment-- Opportunity Anti-Discrimination and Affirmative Action Program. The Contractor receiving the award of the contract shall be required to obtain from each of its subcontractors and submit to the contracting or, administering agency prior to the performance of any work under said contract a certification by said subcontractor, regardless of tier, that it will comply with the minority manpower ratio and specific affirmative action steps contained in the City of Newton Massachusetts Supplemental Equal Employment Opportunity Anti -Discrimination and Affirmative Action Program.
- XIII. **Contractor's Certification**
A Contractor's certification form must be signed by all successful low bidders prior to award by the City. A Contractor shall not be eligible for award of a contract unless the contractor has executed and submitted the Contractor's Certification, which shall be deemed a part of the resulting contract. (See Attachment B)
- XIV. **Subcontractor's Certification**

Prior to the award of any subcontract, regardless of tier, the prospective subcontractor must execute and submit to the Prime Contractor a subcontractor's certification setting forth the subcontractor's compliance with this program, which shall be deemed a part of the resulting subcontract. (See Attachment C)

XV. Compliance - Information, Reports and Sanctions

1. The Contractor will provide all information and reports Required by the administering department or, the City on instruction issued by either of them and will permit access to its facilities and any books, records, accounts and other sources of information which may be determined by the City to affect the employment of personnel. This provision shall apply only to information pertinent to the City's supplementary affirmative action contract requirements. Where information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the administering department or the City as appropriate and shall set forth what efforts he/she has made to obtain the information.
2. Whenever the administering department, the City, or the Liaison Committee believes the General Contractor or any Subcontractor may not-, be operating in compliance with the terms of this Section, the City directly, or through its designated agent, shall conduct: an appropriate investigation, and may confer with the parties, to determine if such Contractor is operating in compliance with the terms of this Section. If the City or its agent finds the General Contractor or any Subcontractor not in compliance, it shall make a preliminary report on non-compliance, and notify such Contractor in writing of such steps as will in the judgement of the City or its agent bring such Contractor into compliance. In the event, that such Contractor fails or refuses to fully perform such steps, the City shall make a final report of non-compliance, and recommend to the administering department the imposition of one or more of the sanctions listed below. If, however, the City believes the General Contractor or any Subcontractor has taken or is taking every possible measure to achieve compliance, it shall not make a final report of non-compliance. within fourteen days at the receipt of the recommendations of the City, the administering department shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement:
 - (a) The recovery by the administering department from the General Contractor of 1/100 of 11 of the contract award price or \$1000 whichever sum is greater, in the nature of liquidated damages or if a Subcontractor is in non-compliance, the recovery by the administering department from the General Contractor, to be assessed by the General Contractor as a back charge against the Subcontractor, of 1/10 of 1% of the sub-contract price, or \$400 whichever sum is greater, in the nature of liquidated damages, for each week that such party fails or refuses to comply
 - (b) The suspension of any payment of part thereof due under the contract until such time as the General Contractor or any Subcontractor is able to demonstrate his compliance with the terms of the contract;
 - (c) The termination, or cancellation, of the contract, in whole or in part, unless the General Contractor or any Subcontractor is able to demonstrate within a specified time his/her compliance with the terms of the City's affirmative action construction contract requirements; OR,
 - (d) The denial to the General Contractor or any Subcontractor of the right to participate in any future contracts awarded by the administering department for a period of up to three years.
3. If at any time after the imposition of one or more of the above sanctions (unless the contract. has been terminated), a Contractor is able to demonstrate that he/she is in compliance with this section, he/she may request the City to suspend the sanctions conditionally pending a final determination by the City as to whether the Contractor is in compliance. Upon final determination of the City, the administrating department, based upon the recommendation of the City, shall either lift the sanctions or continue them.
4. Sanctions enumerated under Section XV shall not: be imposed by the City except after the General Contractor or Subcontractor have had an opportunity for full and fair hearing with City. The non-compliance investigation shall be initiated without prior notice to the contractor. Any sanctions to be imposed shall be, set forth fully and completely in writing, and may then be appealed to t-he City in writing by the Contractor.

.XIV. Severability

The provisions of this section are severable, and if any of these provisions shall be held unconstitutional by any court of competent jurisdiction, the decision of such court. shall not, affect or impair any of the remaining provisions.

FAIR EMPLOYMENT LAW

The Fair Employment Law declares that it is illegal to discriminate on the basis of race, color, religious creed, national origin, sex, sexual orientation, age, ancestry or disability

IT IS UNLAWFUL:

- to print or circulate any advertisement or use any application form which directly or indirectly specifies any limitation on the basis of race, color, religious creed, national origin, sex, sexual orientation, age, ancestry or disability.
- to discharge or refuse to hire any individual on file basis of their race, color, religious creed, national origin, sex, sexual orientation, age, ancestry, or disability.
- to discriminate against any individual in matters relating to compensation, terms, conditions, or privileges of employment because of their race, color, religious creed, national origin, sex, sexual orientation, age, ancestry or disability.
- to require a woman to leave her job at some arbitrary stage in her pregnancy or to refuse to let her return to work until a specified time set by the employer.
- to grant a female employee at least eight weeks leave for purposes of childbirth or to treat her absence differently than any other absence due to disability.
- to require an employee to remain at work during any day or part thereof that s/he observes as a religious holiday provided that the employee gives a ten-day notice and the absence does not cause undue hardship to the employer.
- to discharge or refuse to hire any person because of their failure to furnish information concerning admission to a center for the treatment of mentally ill persons.
- to discriminate against a job applicant for failure to furnish information, written or oral, concerning:- A) an arrest, detention or disposition regarding a violation of law in which no conviction resulted; B) a first conviction for any of the following misdemeanors: driving under the influence, simple assault, speeding, minor traffic violations, disturbance of the peace; or C) conviction for a misdemeanor where the date of the conviction or end of period of incarceration, if any, occurred more than five years prior to the employment application, and the applicant has not been convicted of any offense within the five years immediately before the date of application.

RETALIATION

It is illegal to retaliate against any person because s/he has opposed any practices forbidden under this Chapter or because s/he has filed a complaint, testified, or assisted in any proceeding before the Commission. It is also illegal to aid, abet, incite, compel or coerce the doings of any of the acts forbidden under this Chapter or to attempt to do so.

SEXUAL HARASSMENT

151B:1,18 The term "sexual harassment" shall mean sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature when (a) submission to or rejection of such advances, requests or conduct is made either explicitly or implicitly a term or condition of employment, or as a basis for employment decisions: (h) such advances,, requests or conduct have the purpose or effect of unreasonably interfering with an individual's work performance by creating an intimidating, hostile, humiliating or sexually offensive work environment.

COMPLAINTS

All complaints must be filed in writing. Information on the filing of complaints can be obtained by contacting the MASSACHUSETTS COMMISSION AGAINST DISCRIMINATION at the following locations:

Boston office:
One Ashburton Place
Room 601
Boston, MA 02108
(617) 727-3990

Springfield office:
436 Dwight Street
Suite 315
Springfield, MA 01103
(413) 739-2145

THE MASSACHUSETTS COMMISSION AGAINST DISCRIMINATION

Attachment B

CITY OF NEWTON

Contractors Certification

A Contractor will not be eligible for award of a contract, unless such contractor has submitted the following certification, which is deemed a part of the resulting contract.

CONTRACTOR'S CERTIFICATION

_____. Certifies that:
Contractor's Name

1. it tends to use the following listed construction trades in the work under the contract
_____ and
2. will comply with the minority manpower ration and specific affirmative action steps contained herein; and
3. will obtain from each of its subcontractors and submit to the contracting or administering agency prior to the award of any subcontract under this contract the subcontractor certification required by these bid conditions

(Signature of authorized representative of Contractor)

Any contract for the provision of goods or services to the City of Newton or any of its departments is subject to the ordinance creating the Human Rights Commission, as it may be amended from Time to Time. Any complaints within the purview shall be forwarded immediately to the contracting agency, and a copy shall be sent to the Human Rights Commission; any complaints received by the contracting agency shall be forwarded to the contractor, and a copy shall be sent to the Human Rights Commission.

Attachment C

CITY OF NEWTON

Subcontractors Certification

Prior to the award of any subcontract, regardless of tier, the prospective subcontractor must execute and submit to the Prime Contractor the following certification, which will be deemed a part of the resulting subcontractor.

SUBCONTRACTOR'S CERTIFICATION

_____. Certifies that:
Contractor's Name

1. it tends to use the following listed construction trades in the work under the contract _____ and
2. will comply with the minority manpower ration and specific affirmative action steps contained herein; and
3. will obtain from each of its subcontractors and submit to the contracting or administering agency prior to the award of any subcontract under this contract the subcontractor certification required by these bid conditions

Pursuant to M.G.L. Ch. 62C, Sec. 49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

(Signature of authorized representative of Contractor)

In order to ensure that the said subcontractor's certification becomes part of all subcontracts under the prime contract, no subcontract shall be executed until an authorized representative of the Administrative Agency administering this project has determined in writing, that the said certification has been incorporated in such subcontract, regardless of tier, Any subcontract executed without such written approval shall be void.

Any contract for the provision of goods or services to the City of Newton or any of its departments is subject to the ordinance creating the Human Rights Commission, as it may be amended from Time to Time. Any complaints within the purview shall be forwarded immediately to the contracting agency, and a copy shall be sent to the Human Rights Commission; any complaints received by the contracting agency shall be forwarded to the contractor, and a copy shall be sent to the Human Rights Commission.

END OF SECTION

CITY OF NEWTON

WAGE RATE REQUIREMENTS

1. GENERAL

- A.** This section summarizes the requirements for the payment of wages to laborers and mechanics employed under the Contract.
- B.** Other duties and requirements of law which may not be specified in this section apply and are inherently part of the Contract.

2. WAGE RATES

- A.** The rate per hour to be paid to mechanics, apprentices, teamsters, chauffeurs, and laborers employed on the Work shall not be less than the rate of wages in the attached "Minimum Wage Rates" as determined by the Commissioner of Labor and Industries. The schedule of prevailing wage rates will be updated annually for all public construction projects lasting longer than one (1) year. The contractor shall pay the prevailing wage rate set out in the applicable prevailing wage rate schedule. Increases in prevailing wage rates shall not be the basis for a change order.
- B.** Keep posted on the site a legible copy of said schedule. Keep on file the wage rates and classifications of labor employed on this Work in order that they may be available for inspection by the Owner, Administrator, or the Architect.
- C.** Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council wherever rates for journeymen or apprentices are not listed.
- D.** Pay reserve police officers employed on the Work the prevailing rate of wages paid to regular police officers as required by M.G.L. c 149, Sec. 34B, as amended. Such police officers shall be covered by Workmen's Compensation Insurance and Employers Liability Insurance by the Contractor.
- E.** The Contractor and all subcontractors shall, on a weekly basis throughout the term of the contract, provide to the City of Newton certified payroll affidavits verifying compliance with M.G.L. c.149, Sec. 27, 27A and 27B.
- F.** The Contractor and all subcontractors shall provide a Statement of Compliance within 15 days of the completion of its portion of the work. This statement shall be submitted to the Owner on the form found elsewhere in this section.
- G.** The Contractor shall maintain accurate and complete records, including payroll records, during the Contract term and for three years thereafter. Filings made by the Contractor pursuant to Clauses 47, 48 and 49 of the General Conditions shall be deemed to constitute compliance with State filing requirements under the Massachusetts Prevailing Wage Law.

The Massachusetts Prevailing Wage Law

M.G.L. ch. 149, §§ 26 – 27

NOTICE TO AWARDING AUTHORITIES

- 'The enclosed wage schedule applies only to the specific project listed at the top and will be updated for any public construction project lasting longer than one (1) year.
- 'You should request an updated wage schedule from the Division of Occupational Safety if you have not opened bids or selected a contractor within 90 days of the date of issuance of the enclosed wage schedule.
- 'The wage schedule shall be incorporated in any advertisement or call for bids for the project for which it has been issued.
- 'Once a contractor has been selected by the awarding authority, the wage schedule shall be made a part of the contract for that project.

NOTICE TO CONTRACTORS

- The enclosed wage schedule, and any updated schedule, must be posted in a conspicuous place at the work site during the life of the project.
- The wages listed on the enclosed wage schedule must be paid to employees on public works projects regardless of whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- The enclosed wage schedule applies to all phases of the project including the final clean-up. Contractors whose only role is to perform final clean-up must pay their employees according to this wage schedule.
- All apprentices must be registered with the Massachusetts Division of Apprentice Training in order to be paid at the reduced apprentice rates. If a worker is not registered with the Division of Apprentice Training, they must be paid the “total rate” listed on the wage schedule regardless of experience or skill level. For further information, please call (617) 727-3486 or write to the Division of Apprentice Training, 399 Washington Street, 4th Floor, Boston, MA 02108



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



Prevailing Wage Rates

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

Awarding Authority: City of Newton

Contract Number: 11-78

City/Town: NEWTON

Description of Work: Repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds: East Parish, West Parish and South

Job Location: Various Locations

Classification	Effective Dates and Total Rates								
Construction									
(2 AXLE) DRIVER - EQUIPMENT	12/01/2010	\$45.530	06/01/2011	\$46.280	12/01/2011	\$46.940			
	06/01/2012	\$47.590	12/01/2012	\$48.620					
(3 AXLE) DRIVER - EQUIPMENT	12/01/2010	\$45.600	06/01/2011	\$46.350	12/01/2011	\$47.010			
	06/01/2012	\$47.660	12/01/2012	\$48.690					
(4 & 5 AXLE) DRIVER - EQUIPMENT	12/01/2010	\$45.720	06/01/2011	\$46.470	12/01/2011	\$47.130			
	06/01/2012	\$47.780	12/01/2012	\$48.810					
ADDSUBMERSIBLE PILOT	08/01/2010	\$103.680	08/01/2011	\$107.800					
AIR TRACK OPERATOR	12/01/2010	\$49.850	06/01/2011	\$50.850	12/01/2011	\$52.100			
ASBESTOS REMOVER - PIPE/MECH. EQUIPT.	12/01/2009	\$40.250							
ASPHALT RAKER	12/01/2010	\$49.350	06/01/2011	\$50.350	12/01/2011	\$51.600			
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE	12/01/2010	\$60.980							
BACKHOE/FRONT-END LOADER	12/01/2010	\$60.980							
BARCO-TYPE/JUMPING TAMPER	12/01/2010	\$49.350	06/01/2011	\$50.350	12/01/2011	\$51.600			
BLOCK PAVER, RAMMER / CURB SETTER	12/01/2010	\$49.850	06/01/2011	\$50.850	12/01/2011	\$52.100			
BOILER MAKER	01/01/2010	\$55.850							
APPRENTICE: BOILERMAKER - Local 29									
Ratio	Step	1	2	3	4	5	6	7	8
1.5	%	63.00	63.00	70.00	73.00	80.00	83.00	90.00	93.00
Apprentice wages shall be no less than the following:									
Step 1\$42.64/2\$42.64/3\$44.34/4\$45.05/5\$48.31/6\$50.20/7\$52.08/8\$53.97									
BRICKSTONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	03/01/2011	\$70.900	08/01/2011	\$73.000	02/01/2012	\$73.990			
APPRENTICE: BRICK/PLASTER/CEMENT MASON - Local 3 Newton									
Ratio	Step	1	2	3	4	5			
1.5	%	50.00	40.00	70.00	80.00	90.00			
Apprentice wages shall be no less than the following:									
Step 1\$48.30/2\$52.82/3\$57.34/4\$61.86/5\$66.38									
BULLDOZER/GRADER/SCRAPER	12/01/2010	\$60.630							
CAISSON & UNDERPINNING BOTTOM MAN	12/01/2010	\$50.250	06/01/2011	\$51.250	12/01/2011	\$52.500			
CAISSON & UNDERPINNING LABORER	12/01/2010	\$49.100	06/01/2011	\$50.100	12/01/2011	\$51.350			
CAISSON & UNDERPINNING TOP MAN	12/01/2010	\$49.100	06/01/2011	\$50.100	12/01/2011	\$51.350			

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27
Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Employees not receiving such rates should report the violation to the Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

Issue Date: 04/13/2011

Wage Request Number: 20110413-047

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DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lieutenant Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY

Prevailing Wage Rates

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSSTEIN
Secretary of Labor and Workforce Development
GEORGE E. NOEL
Director of Labor
HEATHER E. BOWE
Assistant Commissioner of Division of Occupational Safety

Awarding Authority: City of Newton

Contract Number: 11-78

City/Town: NEWTON

Description of Work: Repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds: East Parish, West Parish and South

Job Location: Various Locations

Classification	Effective Dates and Total Rates					
CARBIDE CORE DRILL OPERATOR	12/01/2010	\$49.350	06/01/2011	\$50.350	12/01/2011	\$51.600
CARPENTER	03/01/2011	\$56.230	09/01/2011	\$57.360	03/01/2012	\$58.480
APPRENTICE: CARPENTER - Zone 2 Eastern MA						
Ratio	Step	1	2	3	4	5
1.5	%	50.00	60.00	70.00	75.00	80.00
Apprentice wages shall be no less than the following:						
Step 1 \$24,272/\$29,470 \$41,914 \$43,310 \$44,680 \$44,680 \$51,446 \$53,087						
CEMENT MASONRY/PLASTERING	02/01/2011	\$69.070	08/01/2011	\$70.770	02/01/2012	\$71.540
CHAINSAW OPERATOR	12/01/2010	\$49.350	06/01/2011	\$50.350	12/01/2011	\$51.600
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	12/01/2010	\$61.980				
COMPRESSOR OPERATOR	12/01/2010	\$49.690				
DELEADER (BRIDGE)	01/01/2011	\$64.410	07/01/2011	\$65.410	01/01/2012	\$66.410
	07/01/2012	\$67.410	01/01/2013	\$68.410		
APPRENTICE: PAINTER Local 35 - BRIDGES/TANKS						
Ratio	Step	1	2	3	4	5
1.1	%	50.00	55.00	60.00	65.00	70.00
Apprentice wages shall be no less than the following:						
Step 1 \$29,311/\$34,848 \$39,014 \$41,140 \$51,310 \$53,647 \$55,816 \$60,111						
DEMO: ADZEMAN	12/01/2010	\$49.100	06/01/2011	\$50.100	12/01/2011	\$51.330
DEMO: BACKHOE/LOADER/HAMMER OPERATOR	12/01/2010	\$50.100	06/01/2011	\$51.100	12/01/2011	\$52.330
APPRENTICE: LABORER Demo Backhoe/Loader/Hammer Operator						
Ratio	Step	1	2	3	4	
1.5	%	60.00	70.00	80.00	90.00	
Apprentice wages shall be no less than the following:						
Step 1 \$37,482/\$40,448 \$43,794 \$44,931						
DEMO: BURNERS	12/01/2010	\$49.850	06/01/2011	\$50.850	12/01/2011	\$52.100
APPRENTICE: LABORER Demo Burners						
Ratio	Step	1	2	3	4	
1.5	%	60.00	70.00	80.00	90.00	
Apprentice Wages shall be no less than the following:						
Step 1 \$37,333/\$40,448 \$43,594 \$44,721						
DEMO: CONCRETE CUTTER/SAWYER	12/01/2010	\$50.100	06/01/2011	\$51.100	12/01/2011	\$52.330
DEMO: JACKHAMMER OPERATOR	12/01/2010	\$49.850	06/01/2011	\$50.850	12/01/2011	\$52.100

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Employees not receiving such rates should report the violation to the Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

Issue Date: 04/13/2011

Wage Request Number: 20110413-047

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DEVAL L. PAIRICK
Governor
TIMOTHY P. MURRAY
Lieutenant Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY

Prevailing Wage Rates

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSSTEIN
Secretary of Labor and Workforce Development
GEORGE E. NOEL
Director of Labor
HEATHER E. ROWE
Assistant Commissioner of Division of Occupational Safety

Awarding Authority: City of Newton

Contract Number: 11-78

City/Town: NEWTON

Description of Work: Repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds: East Parish, West Parish and South

Job Location: Various Locations

Classification	Effective Dates and Total Rates					
DEMO: WRECKING LABORER	12/01/2010	\$49.100	06/01/2011	\$50.100	12/01/2011	\$51.350
APPRENTICE: LABORER-Demo Wrecking Laborer						
Ratio	Step	1	2	3	4	
1:5	%	40.00	70.00	80.00	90.00	
Apprentice wages shall be no less than the following:						
Step 1 \$34.88/2 \$39.94/3 \$42.99/4 \$44.03						
DIRECTIONAL DRILL MACHINE OPERATOR	12/01/2010	\$60.630				
DIVER	08/01/2010	\$77.520	08/01/2011	\$80.270		
DIVER TENDER	08/01/2010	\$62.570	08/01/2011	\$65.320		
DIVER TENDER (EFFLUENT)	08/01/2010	\$81.250	08/01/2011	\$85.380		
DIVER/SLURRY (EFFLUENT)	08/01/2010	\$103.680	08/01/2011	\$107.800		
ELECTRICIAN	03/01/2011	\$68.290				
APPRENTICE: ELECTRICIAN - Local 103						
Ratio	Step	1	2	3	4	5
2:3***	%	40.00	40.00	45.00	45.00	50.00
Apprentice wages shall be no less than the following Steps:						
App Prior 12/03: 30.05/40.45/50.05/65.70/75.80						
1 \$373.82/2 \$373.82/3 \$41.81/4 \$44.95/5 \$49.08/7 \$51.22/8 \$53.35/9 \$55.49/10 \$57.62						
ELEVATOR CONSTRUCTOR	01/01/2011	\$66.690	01/01/2012	\$68.190		
APPRENTICE: ELEVATOR CONSTRUCTOR - Local 4						
Ratio	Step	1	2	3	4	5
1:1	%	50.00	55.00	65.00	70.00	80.00
Apprentice rates shall be no less than the following:						
Step 1 \$34.24/2 \$43.74/3 \$48.84/4 \$51.41/5 \$54.30						
Steps 1-2 are 6 mos; Steps 3-5 are 1 year						
ELEVATOR CONSTRUCTOR HELPER	01/01/2011	\$52.830	01/01/2012	\$54.330		
FENCE & GUARD RAIL ERECTOR	12/01/2010	\$49.350	06/01/2011	\$50.350	12/01/2011	\$51.600
FIELD ENG. - INST. PERSON (BLDG, SITE, HVY CONST)	11/01/2010	\$38.140	05/01/2011	\$39.380		
FIELD ENG. - ROD PERSON (BLDG, SITE, HVY CONST)	11/01/2010	\$42.200	05/01/2011	\$42.930		
FIELD ENG.-CHIEF OF PARTY (BLDG, SITE, HVY CONST)	11/01/2010	\$59.520	05/01/2011	\$60.770		
FIRE ALARM INSTALLER	03/01/2011	\$68.290				
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING	03/01/2011	\$56.300				

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Employees not receiving such rates should report the violation to the Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

Issue Date: 04/13/2011

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DEVAL L. PAIRICK
Governor
TIMOTHY P. MURRAY
Lieutenant Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY

Prevailing Wage Rates

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary of Labor and Workforce Development
GEORGE E. NOEL
Director of Labor
HEATHER E. LOWE
Assistant Commissioner of Division of Occupational Safety

Awarding Authority: City of Newton

Contract Number: 11-78

City/Town: NEWTON

Description of Work: Repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds: East Parish, West Parish and South

Job Location: Various Locations

Classification	Effective Dates and Total Rates					
FIREMAN (ASST. ENGINEER)	12/01/2010	\$54,840				
FLAGGER & SIGNALER	12/01/2010	\$38,050	06/01/2011	\$39,050	12/01/2011	\$39,050
FLOORCOVERER	03/01/2011	\$61,110	09/01/2011	\$62,360	03/01/2012	\$63,610
APPRENTICE: FLOORCOVERER - Local 2148 Zone 1						
Ratio	Step	1	2	3	4	5
1:1	%	50.00	55.00	60.00	65.00	70.00
Apprentice rates shall be no less than the following:						
Step 1 \$26,388/25,301.78 \$41,418 \$43,205 \$44,784 \$46,577 \$48,370 \$50,163 \$51,956 \$53,749						
FORK LIFT/CHERRY PICKER	12/01/2010	\$60,980				
GENERATOR/LIGHTING PLANT/HEATERS	12/01/2010	\$49,690				
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	01/01/2011	\$53,910	07/01/2011	\$54,910	01/01/2012	\$55,910
	07/01/2012	\$56,910	01/01/2013	\$57,910		
APPRENTICE: GLAZIER - Local 35 Zone 2						
Ratio	Step	1	2	3	4	5
1:1	%	50.00	55.00	60.00	65.00	70.00
Apprentice wages shall be no less than the following:						
Step 1 \$24,042/\$31,086 \$32,714 \$34,335 \$35,956 \$37,577 \$39,198 \$40,819 \$42,440 \$44,061						
HOISTING ENGINEER/CRANES/GRADALLS	12/01/2010	\$60,980				
APPRENTICE: HOISTING ENG. - Local 4						
Ratio	Step	1	2	3	4	5
1:4	%	55.00	60.00	65.00	70.00	75.00
Apprentice wages shall be no less than the following:						
Step 1 \$31,332/\$43,478 \$47,418 \$49,355 \$51,292 \$53,229 \$55,166 \$57,103 \$59,040 \$60,977						
HVAC (DUCTWORK)	02/01/2011	\$65,170	08/01/2011	\$66,420	02/01/2012	\$67,670
	08/01/2012	\$68,920	02/01/2013	\$70,170		
HVAC (ELECTRICAL CONTROLS)	03/01/2011	\$68,290				
HVAC (TESTING AND BALANCING - AIR)	02/01/2011	\$65,170	08/01/2011	\$66,420	02/01/2012	\$67,670
	08/01/2012	\$68,920	02/01/2013	\$70,170		
HVAC (TESTING AND BALANCING - WATER)	09/01/2010	\$68,730				
HVAC MECHANIC	09/01/2010	\$68,730				
HYDRAULIC DRILLS	12/01/2010	\$49,850	06/01/2011	\$50,850	12/01/2011	\$52,100
INSULATOR (PIPES & TANKS)	09/01/2010	\$61,660				

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DEVAL L. PAIRICK
Governor
TIMOTHY P. MURRAY
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THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY

Prevailing Wage Rates

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary of Labor and Workforce Development
GEORGE F. NOEL
Division of Labor
HEATHER E. LOWE
Assistant Commissioner of Division of Occupational Safety

Awarding Authority: City of Newton

Contract Number: 11-78

City/Town: NEWTON

Description of Work: Repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds: East Parish, West Parish and South

Job Location: Various Locations

Classification	Effective Dates and Total Rates					
APPRENTICE: ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston						
Ratio	Step	1	2	3	4	
1:4	%	50.00	60.00	70.00	80.00	
Apprentice wages shall be no less than the following:				Steps are 1 year		
Step 153734/2542203 \$47,078 \$51.93						
IRONWORKER/WELDER			03/16/2010	\$60.940		
APPRENTICE: IRONWORKER - Local 7 Boston						
Ratio	Step	1	2	3	4	5
**	%	60.00	70.00	75.00	80.00	85.00
Apprentice wages shall be no less than the following:				** Structural 1:4; Ornamental 1:4		
Step 154482/2530353 \$32,124 \$33,880 \$35,434 \$37,411						
JACKHAMMER & PAVING BREAKER OPERATOR			12/01/2010	\$49.350	06/01/2011	\$50.350
						12/01/2011
						\$51.600
LABORER			12/01/2010	\$49.100	06/01/2011	\$50.100
						12/01/2011
						\$51.350
APPRENTICE: LABORER - Zone 1						
Ratio	Step	1	2	3	4	
1:5	%	60.00	70.00	80.00	90.00	
Apprentice wages shall be no less than the following:						
Step 153488/2539943 \$42,994 \$44.05						
LABORER: CARPENTER TENDER			12/01/2010	\$49.100	06/01/2011	\$50.100
						12/01/2011
						\$51.350
LABORER: CEMENT FINISHER TENDER			12/01/2010	\$49.100	06/01/2011	\$50.100
						12/01/2011
						\$51.350
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER			12/01/2010	\$49.100	06/01/2011	\$50.100
						12/01/2011
						\$51.350
LABORER: MASON TENDER			12/01/2010	\$49.350	06/01/2011	\$50.350
						12/01/2011
						\$51.600
LABORER: MULTI-TRADE TENDER			12/01/2010	\$49.100	06/01/2011	\$50.100
						12/01/2011
						\$51.350
LABORER: TREE REMOVER			12/01/2010	\$49.100	06/01/2011	\$50.100
						12/01/2011
						\$51.350
This classification applies to the wholesale removal of standing trees including all associated trimming of branches and limbs, and applies to the removal of branches at locations not on or around utility lines.						
LASER BEAM OPERATOR			12/01/2010	\$49.350	06/01/2011	\$50.350
						12/01/2011
						\$51.600
MARBLE & TILE FINISHERS			03/01/2011	\$59.270	08/01/2011	\$60.950
						02/01/2012
						\$61.740
APPRENTICE: MARBLE & TILE FINISHER - Local 3 Marble & Tile						
Ratio	Step	1	2	3	4	5
1:3	%	50.00	60.00	70.00	80.00	90.00
Apprentice wages shall be no less than the following:				Steps are 800 hrs.		
Step 154198/2543433 \$48,804 \$52,350 \$55.81						

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THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



JOANNE F. GOLDSSTEIN
Secretary of Labor and Workforce Development
GEORGE E. NOEL
Director of Labor
HEATHER E. ROWE
Assistant Commissioner of Division of Occupational Safety

Prevailing Wage Rates

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

Awarding Authority: City of Newton

Contract Number: 11-78

City/Town: NEWTON

Description of Work: Repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds: East
Parish, West Parish and South

Job Location: Various Locations

Classification	Effective Dates and Total Rates					
MARBLE MASONS, TILELAYERS & TERRAZZO MECH	03/01/2011	\$70.940	08/01/2011	\$73.040	02/01/2012	\$74.030
APPRENTICE: MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile						
Ratio Step	1	2	3	4	5	
1:3	%	50.00	60.00	70.00	80.00	90.00
Apprentice wages shall be no less than the following:						
Step 154832/2532.84/3437378441.88/544.42						
MECH. SWEEPER OPERATOR (NON CONSTRUCTION)	07/01/2010	\$29.590	07/01/2011	\$30.290		
MECH. SWEEPER OPERATOR (ON CONST. SITES)	12/01/2010	\$60.630				
MECHANICS MAINTENANCE	12/01/2010	\$60.630				
MILLWRIGHT (Zone 1)	04/01/2011	\$57.850				
APPRENTICE: MILLWRIGHT - Local 1121 Zone 1						
Ratio Step	1	2	3	4	5	6
1:3	%	50.00	55.00	60.00	65.00	70.00
Apprentice wages shall be no less than the following:						
Step 153710/2538.77/342.04/4443.72/544.19/544.78/7850.35/6850.02						
MORTAR MIXER	12/01/2010	\$49.350	06/01/2011	\$50.350	12/01/2011	\$51.600
OILER (OTHER THAN TRUCK CRANES, GRADALLS)	12/01/2010	\$43.170				
OILER (TRUCK CRANES, GRADALLS)	12/01/2010	\$46.330				
OTHER POWER DRIVEN EQUIPMENT - CLASS II	12/01/2010	\$60.630				
PAINTER (BRIDGES/TANKS)	01/01/2011	\$64.410	07/01/2011	\$65.410	01/01/2012	\$66.410
	07/01/2012	\$67.410	01/01/2013	\$68.410		
APPRENTICE: PAINTER Local 35 - BRIDGES/TANKS						
Ratio Step	1	2	3	4	5	6
1:1	%	50.00	55.00	60.00	65.00	70.00
Apprentice wages shall be no less than the following:						
Step 152931/2534.86/3439.01/4411.65/51.51/5433.44/7855.81/6840.11						
PAINTER (SPRAY OR SANDBLAST, NEW)*	01/01/2011	\$55.310	07/01/2011	\$56.310	01/01/2012	\$57.310
	07/01/2012	\$58.310	01/01/2013	\$59.310		
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.						
APPRENTICE: PAINTER Local 35 Zone 2 - Spray/Sandblast - New						
Ratio Step	1	2	3	4	5	6
1:1	%	50.00	55.00	60.00	65.00	70.00
Apprentice wages shall be no less than the following:						
Step 1524.74/2531.85/3433.55/4433.24/5443.14/544.83/784.83/6851.92						

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DEVAL L. PAIRICK
Governor
TIMOTHY P. MURRAY
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THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY

Prevailing Wage Rates

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSSTEIN
Secretary of Labor and Workforce Development
GEORGE E. NOEL
Director of Labor
HEATHER E. LOWE
Assistant Commissioner of Division of Occupational Safety

Awarding Authority: City of Newton

Contract Number: 11-78

City/Town: NEWTON

Description of Work: Repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds: East Parish, West Parish and South

Job Location: Various Locations

Classification	Effective Dates and Total Rates					
PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2011	\$53.370	07/01/2011	\$54.370	01/01/2012	\$55.370
	07/01/2012	\$56.370	01/01/2013	\$57.370		
APPRENTICE: PAINTER, Local 35 Zone 2 - Spray/Sandblast - Repaint						
Ratio	Step	1	2	3	4	5
1:1	%	50.00	55.00	60.00	65.00	70.00
Apprentice wages shall be no less than the following:						
Step 1 \$23.79/2530.780 \$32.384 \$33.980 \$43.780 \$54.538 \$64.986 \$70.17						
PAINTER (TRAFFIC MARKINGS)	12/01/2010	\$49.100	06/01/2011	\$50.100	12/01/2011	\$51.350
PAINTER / TAPER (BRUSH, NEW) *	01/01/2011	\$53.910	07/01/2011	\$54.910	01/01/2012	\$55.910
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.	07/01/2012	\$56.910	01/01/2013	\$57.910		
APPRENTICE: PAINTER - Local 35 Zone 2 - BRUSH NEW						
Ratio	Step	1	2	3	4	5
1:1	%	50.00	55.00	60.00	65.00	70.00
Apprentice wages shall be no less than the following:						
Step 1 \$24.04/2531.080 \$32.714 \$34.330 \$44.140 \$54.578 \$64.741 \$68.50.66						
PAINTER / TAPER (BRUSH, REPAINT)	01/01/2011	\$51.970	07/01/2011	\$52.970	01/01/2012	\$53.970
	07/01/2012	\$54.970	01/01/2013	\$55.970		
APPRENTICE: PAINTER, Local 35 Zone 2 - BRUSH REPAINT						
Ratio	Step	1	2	3	4	5
1:1	%	50.00	55.00	60.00	65.00	70.00
Apprentice wages shall be no less than the following:						
Step 1 \$23.09/2530.010 \$31.544 \$33.070 \$42.804 \$54.337 \$64.584 \$68.91						
PANEL & PICKUP TRUCKS DRIVER	12/01/2010	\$45.360	06/01/2011	\$46.110	12/01/2011	\$46.770
	06/01/2012	\$47.420	12/01/2012	\$48.450		
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2010	\$62.570	08/01/2011	\$65.320		
PILE DRIVER	08/01/2010	\$62.570	08/01/2011	\$65.320		
APPRENTICE: PILE DRIVER - Local 54 Zone 1						
Ratio	Step	1	2	3	4	5
1:3	%	40.00	45.00	70.00	75.00	80.00
Apprentice wages shall be no less than the following:						
Step 1 \$47.42/2549.490 \$51.344 \$53.230 \$55.104 \$57.947 \$63.880 \$68.70						
PIPEFITTER & STEAMFITTER	09/01/2010	\$68.730				
APPRENTICE: PIPEFITTER - Local 337						
Ratio	Step	1	2	3	4	5
**	%	40.00	45.00	60.00	70.00	80.00
Apprentice Rate - Step 1 \$33.44/2543.380 \$30.294 \$34.90/3539.51						
Ratify/C Mechanic: **1:1; 2:24; 3:4; 4:8; 5:10; 6:12; 7:14; 8:17; 9:20; 10:23 (Max)						
**1:3; 3:15; 1:10 thereafter / Steps and 1 yr.						

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

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Issue Date: 04/13/2011

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DEVAL L. PAIRICK
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THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY

Prevailing Wage Rates

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSSTEIN
Secretary of Labor and Workforce Development
GEORGE E. NOEL
Director of Labor
HEATHER E. ROWE
Assistant Commissioner of Division of Occupational Safety

Awarding Authority: City of Newton

Contract Number: 11-78

City/Town: NEWTON

Description of Work: Repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds: East Parish, West Parish and South

Job Location: Various Locations

Classification	Effective Dates and Total Rates					
PIPELAYER	12/01/2010	\$49,350	06/01/2011	\$50,350	12/01/2011	\$51,600
PLUMBERS & GASFITTERS	03/01/2011	\$67,500	09/01/2011	\$68,250	03/01/2012	\$69,030
	09/01/2012	\$70,300	03/01/2013	\$71,550		
APPRENTICE: PLUMBER - Local 12						
Ratio	Step	1	2	3	4	5
**	%	35.00	40.00	55.00	65.00	75.00
Apprentice wages shall be no less than the following:			** 1:2; 2:4; 3:10; 4:14; 5:19/Step and 1 yr			
Step 1 \$30,01/\$32,890 \$41,548/\$47,314/with \$50.20 /Step 2 \$43,091 /with \$55.98						
PNEUMATIC CONTROLS (TEMP.)	09/01/2010	\$68,730				
PNEUMATIC DRILL/TOOL OPERATOR	12/01/2010	\$49,350	06/01/2011	\$50,350	12/01/2011	\$51,600
POWDERMAN & BLASTER	12/01/2010	\$50,100	06/01/2011	\$51,100	12/01/2011	\$52,350
POWER SHOVEL/DERRICK/TRENCHING MACHINE	12/01/2010	\$60,980				
PUMP OPERATOR (CONCRETE)	12/01/2010	\$60,980				
PUMP OPERATOR (DEWATERING, OTHER)	12/01/2010	\$49,690				
READY-MIX CONCRETE DRIVER	05/01/2010	\$41,080	05/01/2011	\$41,690		
RECLAIMERS	12/01/2010	\$60,630				
RESIDENTIAL WOOD FRAME CARPENTER **	04/01/2009	\$35,620				
** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement.						
As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.						
APPRENTICE: CARPENTER (Residential Wood Frame) - Zone 2						
Ratio	Step	1	2	3	4	5
1:5	%	60.00	60.00	65.00	70.00	75.00
Apprentice wages shall be no less than the following:			Step 1 \$20,13/\$24,048 \$27,234/\$28,430/\$29,630/\$30,830/\$32,032/\$33,232			
RIDE-ON MOTORIZED BUGGY OPERATOR	12/01/2010	\$49,350	06/01/2011	\$50,350	12/01/2011	\$51,600
ROLLER/SPREADER/MULCHING MACHINE	12/01/2010	\$60,630				
ROOFER (Inc. Roofer Waterproofing & Roofer Dampproofg)	02/01/2011	\$54,860	08/01/2011	\$55,860	02/01/2012	\$56,860
	08/01/2012	\$57,860	02/01/2013	\$58,860		

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DEVAL L. PAIRISK
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THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY

Prevailing Wage Rates

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSSTEIN
Secretary of Labor and Workforce Development
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Assistant Commissioner of Division of Occupational Safety

Awarding Authority: City of Newton

Contract Number: 11-78

City/Town: NEWTON

Description of Work: Repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds: East Parish, West Parish and South

Job Location: Various Locations

Classification	Effective Dates and Total Rates									
APPRENTICE: ROOFER - Local33										
Ratio	Step	1	2	3	4	5				
**	%	50.00	60.00	65.00	75.00	85.00				
**1:5, 2:4-10, the 1:10; Reroofing: 1:4, then 1:1										
Step 1 x 2000 hrs; Steps 2-5 are 1000 hrs.										
Apprentice rates no less than: Step 1 \$30.41/\$240.44/\$342.41/\$45.97/\$549.33										
ROOFER SLATE/TILE/PRECAST CONCRETE					02/01/2011	\$55.110	08/01/2011	\$56.110	02/01/2012	\$57.110
					08/01/2012	\$58.110	02/01/2013	\$59.110		
APPRENTICE: ROOFER (Slate/Tile/Precast Concrete) - Local33										
Ratio	Step	1	2	3	4	5				
**	%	50.00	60.00	65.00	75.00	85.00				
Apprentice wages shall be paid no less than the following:										
Step 1 \$30.54/\$240.79/\$342.58/\$44.16/\$549.74										
SHEETMETAL WORKER					02/01/2011	\$65.170	08/01/2011	\$66.420	02/01/2012	\$67.670
					08/01/2012	\$68.920	02/01/2013	\$70.170		
APPRENTICE: SHEET METAL WORKER - Local17-A										
Ratio	Step	1	2	3	4	5	6	7		
1:4	%	40.00	45.00	50.00	60.00	65.00	75.00	85.00		
Apprentice wages shall be no less than the following:										
Steps 1-3 are 1 year; Steps 4-7 are 6 mos.										
Step 1 \$28.84/\$234.49/\$337.38/\$42.38/\$545.01/\$650.27/\$755.03										
SIGNERECTOR					06/01/2009	\$37.780				
APPRENTICE: SIGNERECTOR - Local33 Zone2										
Ratio	Step	1	2	3	4	5	6	7	8	9
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00
Apprentice wages shall be no less than the following:										
Steps are 6 mos.										
Step 1 \$19.48/\$223.12/\$24.34/\$25.40/\$30.34/\$31.58/\$32.82/\$34.04/\$35.30										
SPECIALIZED EARTH MOVING EQUIP < 3.5 TONS					12/01/2010	\$45.820	06/01/2011	\$46.570	12/01/2011	\$47.230
					06/01/2012	\$47.880	12/01/2012	\$48.910		
SPECIALIZED EARTH MOVING EQUIP > 3.5 TONS					12/01/2010	\$46.110	06/01/2011	\$46.860	12/01/2011	\$47.520
					06/01/2012	\$48.170	12/01/2012	\$49.200		
SPRINKLER FITTER					01/01/2011	\$70.550	09/01/2011	\$71.350	01/01/2012	\$71.500
					03/01/2012	\$72.250	09/01/2012	\$73.250	01/01/2013	\$73.400
					03/01/2013	\$74.400				
APPRENTICE: SPRINKLER FITTER - Local330										
Ratio	Step	1	2	3	4	5	6	7	8	9
1:1	%	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00
Apprentice wages shall be no less than the following steps:										
Step 1 \$20.25/\$38.75/\$41.30/\$43.85/\$46.40/\$48.95/\$51.50/\$54.05/\$56.60/\$59.15										
STEAM BOILER OPERATOR					12/01/2010	\$60.630				

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Employees not receiving such rates should report the violation to the Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

Issue Date: 04/13/2011

Wage Request Number: 20110413-047

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THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



Prevailing Wage Rates

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

Awarding Authority: City of Newton

Contract Number: 11-78

City/Town: NEWTON

Description of Work: Repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds: East Parish, West Parish and South

Job Location: Various Locations

Classification	Effective Dates and Total Rates					
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	12/01/2010	\$60.630				
TELECOMMUNICATION TECHNICIAN	03/01/2011	\$56.300				
APPRENTICE: TELECOMMUNICATION TECHNICIAN - Local 103						
Ratio	Step	1	2	3	4	5
1:1	%	40.00	45.00	50.00	55.00	60.00
Apprentice wages shall be no less than the following:						
Step 1 \$37.09/25 \$38.490 \$40.304 \$41.890 \$43.490 \$45.110/75 \$48.306 \$49.900						
TERRAZZO FINISHERS	03/01/2011	\$69.840	08/01/2011	\$71.940	02/01/2012	\$72.930
APPRENTICE: TERRAZZO FINISHER - Local 3 Marble & Tile						
Ratio	Step	1	2	3	4	5
1:3	%	50.00	60.00	70.00	80.00	90.00
Apprentice wages shall be no less than the following:						
Step 1 \$47.77/25 \$52.180 \$54.604 \$57.010 \$59.413						
TEST BORING DRILLER	12/01/2010	\$30.500	06/01/2011	\$51.500	12/01/2011	\$52.750
TEST BORING DRILLER HELPER	12/01/2010	\$49.220	06/01/2011	\$50.220	12/01/2011	\$51.470
TEST BORING LABORER	12/01/2010	\$49.100	06/01/2011	\$50.100	12/01/2011	\$51.350
TRACTORS/PORTABLE STEAM GENERATORS	12/01/2010	\$60.630				
TRAILERS FOR EARTH MOVING EQUIPMENT	12/01/2010	\$46.400	06/01/2011	\$47.150	12/01/2011	\$47.810
	06/01/2012	\$48.460	12/01/2012	\$49.490		
TUNNEL WORK - COMPRESSED AIR	12/01/2010	\$61.680	06/01/2011	\$62.930	12/01/2011	\$64.180
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	12/01/2010	\$63.680	06/01/2011	\$64.930	12/01/2011	\$66.180
TUNNEL WORK - FREE AIR	12/01/2010	\$53.750	06/01/2011	\$55.000	12/01/2011	\$56.250
TUNNEL WORK - FREE AIR (HAZ. WASTE)	12/01/2010	\$55.750	06/01/2011	\$57.000	12/01/2011	\$58.250
VAC-HAUL	12/01/2010	\$45.820	06/01/2011	\$46.570	12/01/2011	\$47.230
	06/01/2012	\$47.880	12/01/2012	\$48.910		
WAGON DRILL OPERATOR	12/01/2010	\$49.350	06/01/2011	\$50.350	12/01/2011	\$51.600
WASTE WATER PUMP OPERATOR	12/01/2010	\$60.980				
WATER METER INSTALLER	03/01/2011	\$67.500	09/01/2011	\$68.250	03/01/2012	\$69.030
	09/01/2012	\$70.300	03/01/2013	\$71.550		

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27
Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a
violation of M.G.L. ch. 149, sec. 27. Employees not receiving such rates should report the violation to the
Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

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DEVAL L. PAIRICK
Governor
TIMOTHY P. MURRAY
Lieutenant Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY

Prevailing Wage Rates

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSSTEIN
Secretary of Labor and Workforce Development
GEORGE E. NOEL
Director of Labor
HEATHER E. ROWE
Assistant Commissioner of Division of Occupational Safety

Awarding Authority: City of Newton

Contract Number: 11-78

City/Town: NEWTON

Description of Work: Repair, stabilization and restoration of tombs and monuments in Newton's three historic burying grounds: East Parish, West Parish and South

Job Location: Various Locations

Classification

Effective Dates and Total Rates

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours) unless otherwise specified.

- * Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof.
- ** Multiple ratios are listed in the comment field.
- *** The job site ratio of 2 apprentices (APP) for every 3 journeymen (JM) is allowed as follows:
1 JM: 1 APP; 2-3 JM: 2 APP; 4-6 JM: 4 APP; 7-9 JM: 6 APP; 10-12 JM: 8 APP; 13-15 JM: 10 APP; etc.
- **** The job site ratio of 2 apprentices (APP) for every 3 journeymen (JM) is allowed as follows:
1-2 JM: 1 APP; 3-4 JM: 2 APP; 5 JM: 3 APP; 6-7 JM: 4 APP; 8 JM: 5 APP; etc.

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Employees not receiving such rates should report the violation to the Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

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WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. This is required to be done on a weekly basis. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor or public body shall furnish to the Department of Labor & Workforce Development/Division of Occupational Safety within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

_____, 201_____

I, _____,
(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by

_____ on the _____
(Contractor, subcontractor or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature _____

Title _____

DIVISION OF OCCUPATIONAL SAFETY, 399 WASHINGTON STREET, 5TH FL., BOSTON, MA. 02108

**CITY OF NEWTON
DEPARTMENT OF PUBLIC WORKS**

**SUMMARY OF WORK AND SPECIFIC REQUIREMENTS OF THE CONTRACT
FOR PUBLIC WORKS CONSTRUCTION**

I. SUMMARY OF WORK

A. The Work under the Contract consists of:

1. The restoration of the damaged tombs and monuments both above and below grade, including but not limited to:
 - Dismantling and re-setting of stone and brick tomb walls
 - Dismantling and re-setting of stone and brick monuments
 - Filling opened tombs with sand.
 - Repointing of tomb walls and monuments
 - Rebuilding and repointing of damaged brick tomb vaults
 - Treatment of damaged stones by a stone conservator
2. The work as shown on the Contract Documents will be completed under the Base Bid and five (5) alternates as instructed by the City of Newton and Historic Newton.
3. All means and methods for completed the work will be determined by the Contractor.
4. All work described in the Project Manual and/or shown on the Plan(s) unless specifically indicated as not to be done.

B. In addition the work under the contract includes:

1. Work outside the Project Site as called for in the Project Manual and/or Plan(s) and as required for the performance of the work.
2. The restoration of any items damaged or destroyed by encroaching upon areas outside the Project Site.
3. All labor, materials, tools, and equipment necessary to do all the work required for the completion of each item as specified, which shall limited not only to the exact intent mentioned, but shall include incidental work necessary or customarily performed for the completion of that item.
4. All items not specifically mentioned or noted in the Project Manual and/or Plan(s), but which are obviously necessary to make a complete working installation.

C. The Proposed Contract Price shall be complete costs, including overhead, profit, insurance, transportation, and all other costs connected with, or incidental to the work described.

II. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

A. Upon notification the Contractor shall commence the work specified in the Project Manual as directed by the City. The work shall proceed in a continuous uninterrupted fashion with adequately staffed crews, in a satisfactory manner, which will assure that the work is completed in a timely manner to the satisfaction of the City.

B. All work pursuant to this contract shall be completed within one hundred and eighty (180) calendar days following Notice to Proceed, unless the City specifically grants an extension of time.

- C. Time is of the essence for the completion of this contract. If the Contractor fails to achieve substantial or final completion of the Work within the time required by the contract, and unless an extension of time is granted, the Contractor shall pay to the City as liquidated damages, the applicable amount specified in Article 6a of the General Conditions for each day of delay. If different completion dates are specified in the Contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another section in this Contract, liquidated damages shall not be due the City. The Contractor remains liable for damages caused other than by delay

III. INSURANCE REQUIREMENTS

- A. The Contractor shall carry and maintain until acceptance of the work such Workmen's Compensation, Automobile Liability, Public Liability, Contingent Public Liability, Property Damage and Contingent Property Damage Insurance, each including blasting coverage, as shall protect him and any sub-contractor performing work covered by this contract from all claims and liability for damages for personal injury, including accidental death, and for property damage which may arise from operations under this contract, whether such operations be by himself or by any sub-contractor or by any one directly or indirectly employed by either of them.
- B. The City shall be named as an additional insured on such policy.
- C. The amounts of such insurance shall be as follows:
1. Workmen's Compensation Insurance as required by Massachusetts General Law.
 2. Automobile Liability Insurance on all vehicles owned or hired for a.) Bodily Injury in an amount not less than \$500,000.00 for each occurrence, and not less than \$1,000,000.00 aggregate; b.) Property Damage in an amount not less than \$250,000.00 each occurrence, and not less than \$500,000.00 aggregate.
 3. Public Liability Insurance and Contingent Public Liability Insurance in an amount not less than \$500,000.00 for injuries, including accidental death to any one person, and subject to the same limit for each person, in an amount not less than \$1,000,000.00 on account of one accident.
 4. Property Damage Insurance and Contingent Property Damage Insurance in an amount not less than \$250,000.00 on account of one accident, and in an amount of not less than \$500,000.00 on account of all accidents.
 5. General Liability Insurance shall include Contractual Liability Insurance.
- D. Before any work is started, the successful bidder shall be required to file with the Chief Procurement Officer certificates of insurance coverage as detailed above, with policy numbers and dates of expiration.
- E. The Contractor shall indemnify, hold harmless and defend the City and its departments, officers, employees, servants, and agents from and against all actions, causes of actions, claims, demands, damages, costs, loss of services, expenses and compensation, including attorney's fees and interest arising out of or resulting directly or indirectly from the services rendered pursuant to this Contract, provided that any such action, cause of action, claim, demand, damage, cost, loss of service, expense, compensation (1) in any way grows out of bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, which (2) is caused in whole or in part by any act or omission of the Contractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

END OF SUMMARY

GENERAL PROVISIONS

1.0 PROJECT SITE

- A. The area of work shall be three historical burying grounds in Newton, MA. The East Parish Burying Ground is located at the intersection of Centre and Cotton Streets. The South Parish Burying Ground, also referred to as Evergreen St Cemetery, is located on Winchester Street. The West Parish Burying Ground is located at the intersection of River and Cherry Streets.

2.0 GENERAL REQUIREMENTS

- A. All work shall comply with the latest edition of the Massachusetts State Building Code and the Secretary of the Interior's Standards for Historic Preservation.
- B. The Contractor shall be responsible for all temporary shoring of the existing and new structure during the work, and for temporary protection of the surrounding environs.
- C. The Contractor shall be solely responsible for all means and methods of construction employed on this project, and for all temporary bracing, support, and protection of the existing structure. Any sequences of work or methods indicated or implied in the contract documents are present only as assumptions on which the design of the permanent installations were based and are to be considered as suggested options for review by the contractor. Following review of existing conditions and the scope of work, the contractor shall submit his own statement of means and methods as well as schedule to the Engineer and shall keep the Engineer abreast of all progress and the beginning and completion of each phase or item of work.
- D. The Contractor shall be solely responsible for maintaining the safety, stability and security of the structures and all contents and remains during all phases of work and shall correct any defects or damage which results from his actions.
- E. The Contractor shall return all property including surrounding tombs, lawn areas and paved areas to the original condition. All repairs and/or replacement of existing materials and surfaces are to match the existing.
- F. All debris of any nature shall be removed from the site and disposed of in accordance with all Federal, State and local regulations.
- G. The Contractor shall, at his own discretion, shall retain the services of a certified industrial hygienist to review the cleanliness of the existing tombs before they are entered.

3.0 DRAWINGS

- A. The attached drawings and any alterations or additions through addendum's shall be the working drawings for the project.
- B. Drawings shall not be scaled.
- C. The Contractor shall field verify all existing conditions and dimensions and shall be responsible for dimensional coordination. Notify the Engineer of any and all discrepancies.
- D. All items not specifically mentioned in the specifications or noted on the drawings, but which are obviously necessary to make a complete working installation, shall be included.

4.0 MATERIALS

- A. Unless specifically so stated to the contrary the use of a manufacturer's name or style number is not restrictive, and is intended solely as an identification of the type and quality of the materials and services required. In all cases, the words "or approved equal" if not inserted are implied.

- B. An item equal to that named or described in the specifications may upon written approval of the City be furnished by the Contractor. An item shall be considered equal to the item so named or described if (1) it is at least equal in quality, durability, appearance, strength and design; (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased; (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the specifications.
- C. The name and identification of all materials other than the one specifically named shall be submitted to the City in writing for approval, prior to purchase, use or fabrication of such items. Subject to the provisions of M.G.L. Ch. 30, Sec. 39J, approval shall be at the sole discretion of the City, shall be in writing to be effective, and the decision of the City shall be final. The City may require tests of all materials so submitted to establish quality standards at the Contractor's expense.
- D. For the use of material other than the one specified, the Contractor shall assume the cost of and responsibility for satisfactorily accomplishing all changes in the work as shown. All directions, specifications and recommendations by manufacturers for the installation, handling, storing, adjustment, and operation of their equipment shall be complied with and responsibility for proper performance shall continue to rest with the Contractor.
- E. Except as otherwise provided for by the provisions of M.G.L. Ch. 30, Sec. 39J, the Contractor shall not have any right of appeal from the decision of the City condemning any materials furnished if the Contractor fails to obtain the approval for substitution in accordance with these provisions. If any substitution is more costly, the Contractor shall pay for such costs

END OF SECTION

CITY OF NEWTON

SPECIAL CONDITIONS OF THE CONTRACT FOR PUBLIC WORKS CONSTRUCTION

The following Special Conditions supplement the City of Newton General Conditions of the Contract for Public Works Construction. The following clauses relate in particular to this contract. In the event of conflict or ambiguity between the General Conditions and these Special Conditions, the Special Conditions take precedence and shall govern.

1. The Contractor shall provide such police officers as the Engineer deems necessary for the direction and control of traffic entering, passing through and leaving the site of the contract. Such officers shall wear regulation policemen's uniforms and fluorescent safety vests. The City will reimburse the Contractor for payments made for the services of all traffic officers. The Contractor is required to submit to the Engineer copies of evidence of payment.
2. Unless otherwise specified elsewhere in this contract or specifically directed by the Engineer, all excavated material shall be wasted off-site at the Contractors' expense. No City of Newton disposal area will be available for this purpose.
3. The Contractor shall make his own arrangements with the owners of land other than the City easements occupied by or used by him in the prosecution of this contract and shall hold the City harmless from any and all claims for damages caused by or arising from such occupation or use. All temporary roadways built to accommodate equipment, trucks, etc., shall be built at the Contractor's own expense.
4. The City does not guarantee the locations of existing pipes or underground conduits. The locations of these structures shown on the plans are approximate. In private lands where sprinkler systems, driveway, walk and step heating cables and/or heating pipes are encountered, the Contractor shall use due caution when excavating in the vicinity of these structures.
5. The City does not guarantee the nature of any material encountered in any excavation. The Contractor must make his own examination, by boring, test holes, or otherwise, for determining the nature of the material to be excavated or the conditions under which the work is to be performed, and make his bid in sole reliance thereon.
6. The Contractor shall clean up the entire project before the City will accept the work. All rubbish, tree stumps, boulders from any excavation, surplus excavated material, unless specifically ordered by the Engineer to do otherwise, or any other debris shall be disposed of by the Contractor. The entire area within the easements and all other areas disturbed by the Contractor shall be graded and left in a condition comparable to that as found originally and satisfactory to the Engineer. All the work mentioned in this paragraph shall be included in the Furnishing, Trenching and Laying Item.
7. All trenches and areas resurfaced by the Contractor shall be guaranteed against settlement, upheaval or failure of any kind for a period of one (1) year after the City accepts the work and he shall replace such resurfacing at his own expense. The City Engineer shall be sole judge as to what constitutes a failure and which portion of the resurfacing is to be replaced, and his decision shall be final.
8. Before starting the work and from time to time during its progress, as the Engineer may request, the Contractor shall submit to the Engineer a written description of the methods he plans to use in doing the work and the various steps he intends to take.
9. The terms "earth excavation" and "excavation" used throughout these specifications shall include all the material to be excavated and/or removed (except rock excavation) including peat, muck, roots, trees, stumps, and all other material necessary for the completion of the work to be done as specified.
10. The term "complete in place" used throughout these specifications shall include all the work to be done for the completion of the item as specified.
11. The Contractor shall cooperate with other Contractors, Utility Companies and/or City of Newton Departments that may be working on or near the work site covered by the contract. The Engineer will decide as to the respective rights of the parties involved and his decisions shall be final.

12. The Contractor shall assume all liability, financial or otherwise, in connection with this contract and shall protect and save harmless the City of Newton for any and all damages or claims that may arise because of inconveniences, delays or loss experienced by him because of the presence and operations of other Contractors, Utility Companies and/or City of Newton Departments working near or within the limits of the contract.
13. The Contractor shall begin on receipt of written orders to do so, and the work once begun shall be continuously carried forward with a force of men adequate in the opinion of the Engineer to complete the work in a reasonable and expeditious manner, inclement and unseasonable weather conditions excepted. In the event the Engineer determines that the Contractor has not begun work on written orders to do so, or that the work once begun has been abandoned without authority, then the Engineer shall give the Contractor seventy-two (72) hours notice (Sunday excepted) to begin work, or resume work in case of abandonment. Failure of the Contractor to act within this specified time shall be deemed a breach of this contract and the Contractor shall be held liable for any damage or expense arising from such breach of contract.
14. Upon commencement of the work the Contractor shall assume full charge and care thereof and he shall take every necessary precaution against injury or damage to the work by action of the elements, or from any cause whatever, whether arising from the execution or the non-execution of the contract. The Contractor shall bear all losses resulting to him on account of the amount or character of the work or because the nature of the land in or on which the work is done is different from what was estimated or expected, or on account of the weather elements or other causes.
15. The Contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any of the above causes before the completion and final acceptance of the work, and shall bear the expense thereof.
16. All notices, demands, requests, instructions, approvals and claims must be in writing. Any such notice shall be deemed to have been given as of the time of delivery, or of actual receipt in the case of telegrams or, in the case of mailing, when it should have been received in due course of post. For communicating purposes, the office address of the Contractor shall be that stated on the signature page of the contract; that of the City shall be as stated in the Notice to Contractors. Any subsequent change in address of either party shall be communicated to the other in writing.
17. The City will furnish to the Contractor, without charge, all copies of the specifications reasonably necessary in the performance of the contract work.
18. The Contractor shall supply to the City the name and telephone number of a responsible person who may be contacted during off-hour emergencies on the project. The Contractor shall cooperate at all times with the City and the Project Manager, and ensure the cooperation of his key personnel and that of his subcontractors.
19. The work must be completed in a continuous uninterrupted operation. The Contractor must use sufficient men and adequate equipment to complete all the necessary work requirements within a minimum period of time. The work shall be conducted between the hours of 7:00 a.m. and 4:30 p.m. on Monday through Friday. No work shall be done on holidays, Saturdays or Sundays other than for emergencies, or unless specifically authorized by the City.
20. The Contractor shall, with each monthly invoice submitted during the term of this Contract, submit to the City two (2) legible copies of his payrolls documenting the wages paid to all employees performing on site labor relating to the work of this Contract. These copies shall be prepared on forms supplied by the City.
21.
 - a.) Unless specifically so stated to the contrary the use of a manufacturer's name or style number is not restrictive, and is intended solely as an identification of the type and quality of the materials and services required. In all cases, the words "or approved equal" if not inserted are implied.
 - b.) An item equal to that named or described in the specifications may upon written approval of the City be furnished by the Contractor. An item shall be considered equal to the item so named or described if (1) it is at least equal in quality, durability, appearance, strength and design; (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased; (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the specifications.
 - c.) The name and identification of all materials other than the one specifically named shall be submitted to the City in writing for approval, prior to purchase, use or fabrication of such items. Subject to the provisions of M.G.L. Ch. 30, Sec. 39J, approval shall be at the sole discretion of the City, shall be in writing to be effective, and the decision of the City shall be final. The City may require tests of all materials so submitted to establish quality standards at the Contractor's expense.

- d.) For the use of material other than the one specified, the Contractor shall assume the cost of and responsibility for satisfactorily accomplishing all changes in the work as shown. All directions, specifications and recommendations by manufacturers for the installation, handling, storing, adjustment, and operation of their equipment shall be complied with and responsibility for proper performance shall continue to rest with the Contractor.
 - f.) Except as otherwise provided for by the provisions of M.G.L. Ch. 30, Sec. 39J, the Contractor shall not have any right of appeal from the decision of the City condemning any materials furnished if the Contractor fails to obtain the approval for substitution in accordance with these provisions. If any substitution is more costly, the Contractor shall pay for such costs
- 22. In addition to other guarantees or warranties required under law or other sections of the specification, the Contractor warrants all materials furnished and labor performed under this Contract to be free from defects or errors in workmanship or installation for a period of one year from the date of Completion of the work, as certified by the Project Manager. The Contractor shall indemnify the City of Newton for the full cost of any damage to the property that may result by reason of such defects or errors and shall indemnify the City of Newton from and against any and all claims, demands, losses, costs, expenses, liabilities and damages, including reasonable attorney's fees and expenses, arising out of or on account of this Contract, including but not limited to claims brought against the City of Newton for alleged infringement of patents based upon any methods of construction or application of upon materials furnished under the Contract.
 - 23. The Contractor shall make no excavation in any public way or utility easement unless at least forty-eight (48) hours, exclusive of Saturdays, Sundays and legal holidays, before the proposed excavation is to be made, he has given notice in writing by registered mail, of the proposed excavation to such Public Utility Companies as supply gas, electricity and telephone service in the City, to such private companies as supply cable television service in the City and also to the City of Newton Water Department. Such notice shall set forth the name of the street and a reasonably accurate description of the location in which the excavation is to be made. The Contractor shall comply with the Dig Safe Law (G.L. c. 82, Sec. 40).
 - 24. The Contractor shall exercise the greatest of care to ensure that no material being hauled either to or from the site by him or his sub-contractor's, is spilled onto any way, public or private, within the City limits. In the event that such spillage does occur, it shall be the Contractors' responsibility to remove the spilled material and clean the area by the end of the work day. If in the judgment of the Engineer, the Contractor has not satisfactorily cleaned the area of any spill, the Engineer may then order the area to be cleaned by the City at the Contractors' expense.
 - 25. No cement or bituminous concrete shall be poured from October 30 to April 15, unless the Contractor receives prior written authority to do so from the Commissioner of Public Works.
 - 26. By submitting a bid Contractor represents and warrants that it has the capability to perform in a year 2000 compliant manner. For the purpose of this paragraph "year 2000 compliant" means that Contractor will continue to perform in accordance with all requirements of this Agreement from, into and between the twentieth and twenty-first centuries, without delay or interruption in performance or delivery of services relating to the ability of systems used by the Contractor, or by parties upon whom the Contractor relies in the performance of this Agreement, to accurately interpret, convert, or process date/time data in electronic format.

END OF SECTION

PROJECT SPECIFICATIONS

SECTION 02050

DISMANTLING AND DEMOLITION

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

- A. Dismantling and demolition of tomb elements for reconstruction and repair.

1.2 RELATED SECTIONS

- A. Section 02205 – Excavation and Backfill
- B. Section 02210 – Temporary Support and Protection
- C. Section 04500 – Masonry Restoration

1.3 REFERENCES

- A. Comply with Massachusetts Department of Public Works (MDPW) Standard Specifications for Bridges, Demolition Requirements.
- B. Comply with all applicable requirements of other sections.

1.4 SUBMITTALS

- A. Submit certificates attesting to legal disposal of refuse materials if requested by the engineer.

1.5 PROTECTION

- A. Provide for the uninterrupted safety of workers and adjacent structures to remain as well as the general public during all phases of the work. Provide warning signs, and barricades as required to maintain a separated, safe, secure site.
- B. Protect all elements that are to remain and all historic elements to be retained and/or re-set. Do not dismantle anything other than what is specifically indicated on the contract documents unless specifically requested to do so in writing by the Engineer.

PART 2 - PRODUCTS AND MATERIALS

2.1 PRODUCTS AND MATERIALS:

- A. Provide products and materials which are incidental to the dismantling and demolition work, disposing of these or salvaging them for re-use as best suits the project conditions.

2.2 BACKFILL

- A. The contractor shall provide suitable backfill as specified under Section 02205 where needed to temporarily fill holes or voids left by removal of partially buried items that are to be re-erected.

PART 3 - EXECUTION

3.1 SITE REVIEW:

- A. Perform full review of site to verify extent of dismantling and to plan for coordination with other trades.

3.2 DISMANTLE (REMOVE FROM PRESENT POSITION) THE FOLLOWING:

- A. Existing grave tomb walls, tables and related elements scheduled for dismantling and reassembly.
- B. Existing incidental items not included in the work that are required to be dismantled in order to complete the scheduled work.

3.3 DISMANTLING OPERATIONS

- A. Carefully study each item to be dismantled and determine the safest, least disturbing and potentially damaging method of disassembly. Number the items, photograph them and make a sketch of assembled items for re-use during re-assembly. Number each component with an appropriate non-permanent method of marking, and note the points of contact or intersection and their orientation. Take photographs of all elements to be worked on before and after the work.
- B. Dismantle the specific items and store in a safe place for re-assembly.
- C. Notify the Engineer immediately if any damage has occurred to any of the dismantled items and propose appropriate methods of repair.

3.4 DEMOLISH ONLY THE FOLLOWING:

- A. Brick back-up wall construction associated with tomb elements scheduled to be replaced or reconstructed.
- B. Only demolish items that are specifically released in writing by the Engineer for demolition.

3.5 DEMOLITION OPERATIONS

- A. Examine areas and conditions under which the work will be performed. Correct conditions which are detrimental to the timely and proper completion of the work. Proceed only when unsatisfactory conditions have been corrected.
- B. Protect items in or near the work that are to remain.
- C. Dispose of demolished materials in environmentally sound and approved manner.
- D. Minimize noise and dust. Provide wetting and protection as required.
- E. Prevent accumulation of debris on the site. Remove refuse or salvaged items on a continuous, on-going basis.
- F. Do not demolish any elements on which other elements depend for their stability without express permission of the Engineer.
- G. Return site to neat, tidy condition following demolition operations.

3.6 STORAGE REQUIREMENTS

- A. All dismantled elements shall be stored on pallets or vertically with spacer bars. Flat stone elements that are stored flat shall not be stacked. A maximum of two flat stone slabs can lean on each other when stored vertically.

END OF SECTION

SECTION 02205

EXCAVATION AND BACKFILL

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

- A. The work of this section includes, but is not limited to, the following:
 - 1. Excavation and backfill of tombs for restoration.
 - 2. Filling of tombs with sand.

1.2 PROJECT CONDITIONS

- A. Protection: Ensure the safe passage of persons and traffic around the areas of earthwork. Provide sheeting, shoring, and bracing as may be required to support sides of excavation.
- B. Dust Control: Take effective measures to minimize and control windblown dust. Do not create ice hazards by water spraying in freezing weather.
- C. Erosion Control: Take effective action to control erosion and run off from site. Prevent siltation of drainage systems and pollution of waterways and waterbodies. Install erosion controls prior to beginning site clearing and earthwork. Provide temporary silt barriers such as Siltation Fencing as may be required to protect adjacent areas and water bodies from site erosion.
- D. Utilities: Locate all utilities and maintain and keep utilities in service and protected from damage, except utilities indicated to be removed or relocated. Excavate and uncover all utilities requiring work or service.
- E. Cold Weather Conditions: Protect subgrade and building foundations from freezing in cold weather. Do not backfill when temperatures are below freezing.
- F. Prior to beginning any soil excavation, the contractor shall submit a proposal in writing to the Architect / Engineer who shall then review it and forward it to the Massachusetts Historical Commission (MHC). MHC shall retain authority to require archeological documentation and mitigation measures to be undertaken by others prior to commencing excavation work. Avoid subsurface disturbance where possible.
- G. Exercise extreme care during excavating to avoid contacting or damaging existing buried coffins, caskets, remains or artifacts. Stop work immediately upon detecting such and notify the Engineer immediately. Contractor shall be responsible for protecting these items on site until a proper method of storing or archiving is determined. Move to another location on the project and resume normal operations during the resulting period of review. This shall not be reason for change orders or delays unless the review period exceeds two weeks for a specific item; therefore, the contractor must allow sufficient slack in his project schedule.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. Structural Fill: Provide gravel, sandy gravel, or gravelly sand free from organic material, loam, trash, snow, ice, frozen soil, and other objectionable material and well graded within the following limits.

SIEVE SIZE	PERCENT FINER BY WEIGHT PASSING THROUGH
3 inches	100
No. 4	30-90
No. 40	10-50
No. 200	0-8

- B. Crushed Stone: Provide clean, washed crushed stone free of fine materials and graded within the following limits:

SIEVE SIZE	PERCENT FINER BY WEIGHT PASSING THROUGH
1 inches	100
¾ inches	90-100
½ inches	10-50
No. 4	0-5
No. 40	0-5
No. 200	0-5

- C. Sand: Provide clean, washed sand free of silt and clay components and graded within the following limits:

SIEVE SIZE	PERCENT FINER BY WEIGHT PASSING THROUGH
No. 4	100
No. 8	95-100
No. 16	70-100
No. 30	40-75
No. 50	10-35
No. 100	2-15

- D. Flowable Fill: Provide controlled low strength materials (CLSM), commonly known as flowable fill, which meets the following requirements:

1. Normal to High Flowability so that all voids within the vault are filled, use of a pump may be found appropriate.
2. Unconfined compressive strength less than 150 psi so as to be considered excavatable.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Locate and mark excavations. Carefully remove sod in ¾" or 1" thick layers with topsoil retained in the root system. Following sod removal, remove topsoil down to a depth where it becomes sandy and inorganic, or to the bottom of the excavation, whichever is reached first. Following topsoil removal, remove remaining soil, if any, to the bottom of the excavation.
- B. Shoring and Bracing: Slope excavations and provide shoring and bracing as needed to comply with requirements of all local requirements and standard, accepted practice.
- C. Dewatering and Drainage: Remove water from excavations by appropriate methods, and protect excavations from surface runoff.
- D. Finished Grades: The grading around the tombs should match the historical grades as closely as can be determined. On the above ground tombs the grading at the fronts of the tombs should allow access to and visibility of the tomb doors.
- E. Moisture Control, Placement and Compaction of Backfill:

1. Outside of and around all tombs: Re-use existing soil from each excavation or replace (or supplement) with structural fill meeting the above gradation requirements. Control moisture in subgrades and in fill materials, and conform compact all materials within 3% of optimum moisture. Compact, to 95% of maximum density as determined by ASTM D1557, Method C. Place backfill in lifts of not more than 6".
 2. Above tombs: Re-use existing soil from each excavation or replace (or supplement) with structural fill, or flowable fill as noted on the drawings, meeting the above gradation requirements. Control moisture in subgrades and in fill materials, and conform compact all materials within 3% of optimum moisture. Place backfill in lifts of not more than 6". Above this shall be 6" of loam per Section 02485.
 3. Inside of tombs: Provide sand meeting the above gradation requirements. By hand, carefully deposit around and over remains and minimally hand-compact in 6" lifts to a degree that will support light foot traffic. See Section 02222 Protection of Remains and Artifacts for additional requirements.
 4. Disposal: Dispose of excess materials and materials which are not to be reused off-site in a legal manner. Do not remove topsoil without the permission of the owner.
- F. Cold Weather: Contractor shall be responsible for protection of earth materials, subgrade, and foundations from frost during excavation operations and shall submit protection plan to the Engineer for review. Do not place or compact fill when ambient air temperatures are below freezing or when the fill could freeze prior to compaction.
- G. Stockpile sod, topsoil, and inorganic soil at separate locations on site for re-use. Locations shall be separated to avoid inter-mixing of materials, shall be protected against run-off, and shall be located on walkways in order to not damage existing lawns.
- H. Protect all grave markers from damage during excavation and backfill operation, utilizing wooden barriers or shields when necessary.

3.2 SURFACING AND SEEDING

- A. Following inorganic fill or crushed stone fill placement along excavations, add topsoil to a minimum depth of 8" from grade.
- B. Following completion of earthwork, add topsoil (loam) to a minimum depth as indicated on the drawings and not less than 4". In locations with increased slope, install Geosynthetic Synthetic Erosion Control Mat at a depth of between 1" and 2" from the top of soil, or as directed by manufacturer's instructions for Regetation Mat (ECRM) and Turf Stabilizaiton (TRM) applications.
- C. Spread sod over topsoil in pieces arranged to most completely cover the area, selecting the most healthy salvaged pieces.
- D. Seed and maintain completed work in accordance with Section 02485 - Seeding.

END OF SECTION

SECTION 02210

TEMPORARY SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

- A. Temporary support of tomb elements and miscellaneous stonework and adjacent structures during work.
- B. Bracing of pits as may be required during excavation and backfilling.

1.2 RELATED SECTIONS

- A. Section 02050 – Dismantling and Demolition
- B. Section 04500 – Masonry Restoration

1.3 REFERENCES

- A. Comply with the following standard material specifications:
 - 1. ASD/LFRD 2005 National Design Specification for Wood Construction.
 - 2. Massachusetts State Building Code, Seventh Edition

1.4 QUALITY CONTROL

- A. Comply with all applicable and referenced standards for the products employed.
- B. The contractor shall be solely responsible for all means and methods of construction employed on this project including all temporary bracing, support and protection of the existing Structure. Any sequences of work or methods indicated or implied in the contract documents are present only as assumptions on which the design of the permanent installations are based and are to be considered as a suggested option for review by the contractor.

PART 2 - PRODUCTS AND MATERIALS

2.1 WOOD PRODUCTS AND CONNECTORS: as may be required to construct shoring and bracing for the existing masonry structures. Provide the following:

- A. Rough Carpentry Materials:
 - Framing: Hem Fir #2 KD or SPF #1 KD, size as noted.
 - Sills: (2) 2x6 SYP #2 Pressure Treated where bearing on masonry or concrete.
 - Sheathing: 3/4" CDX plywood.
 - Shims: Red or white oak, tapered to 1/16" min. dimension.
- B. Provide standard framing connectors suitable for flush framed applications as may be required. All nailing shall be per Massachusetts Building Code. All nails shall be hot dip galvanized.
- C. Provide 6 mil. min. thickness tarpaulins as required for weather protection.
- D. Provide padded blankets of soft fabric pads as needed at bearing locations.

PART 3 - EXECUTION

3.1 CONSTRUCT SHORING AND BRACING TO MAINTAIN SAFE, STABLE CONDITIONS

- A. Construction shall be sufficient for soil loads, stone loads, etc. as well as for anticipated construction loads.
- B. Pit bracing of excavations shall be provided at pits where there is a chance that sides or adjacent structures can cave in during operations. Bracing shall be temporary, and shall be withdrawn as backfill and/or new subgrade structures are installed.
- C. Lateral bracing shall be provided as needed to position and stabilize stonework during setting in excavated pits and backfilling.
- D. Do not utilize any anchors which will permanently mar the existing surrounding structure to be preserved.
- E. Provide and utilize removable shims during lifting, setting, and positioning operations to maintain safe, even support of effected elements. Shims shall be removed in their entirety following work that requires their use.
- F. Protect all contact points between shoring / bracing and stone elements with soft pads and/or blankets.

3.2 PROTECTION OF SENSITIVE AND/OR UNCOVERED ELEMENTS

- A. Provide barricades, covers, and sleepers as may be required to protect artifacts, stones, and other sensitive elements from the public and severe weather.
- B. Do not allow stones or wooden elements that are being restored or set to rest directly on the earth but maintain in a clean, dry condition during all operations in which the cleanliness and dryness of the elements is critical.
- C. Cover all open excavations with plywood or tarpaulins during periods of inclement weather.

3.3 REMOVAL AND CLEANUP

- A. Remove all work provided under this section from the site and dispose of in an approved manner.

END OF SECTION

SECTION 02222

PROTECTION OF TOMB CONTENTS

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

- A. This Section addresses the protection of Human Remains and associated Artifacts that may be encountered within the tombs.

1.2 RELATED WORK

- A. Section 02210- Temporary Support and Protection
- B. Section 02050- Dismantling and Demolition
- C. Section 04500- Masonry Restoration

1.3 GENERAL REQUIREMENTS

- A. Protection of Remains/ Artifacts: All work must be done in such a way as does not disturb the existing remains and artifacts in the floors of the vaults on which work will proceed.
- B. Ventilation and Worker Safety: Out of concern for the unlikely possibility of pre-existing diseases festering within the human remains and/or artifacts that have up to now been contained within the tombs, the interiors of the tombs shall be properly ventilated for at least one hour prior to access by workers. Workers shall be properly suited with OSHA-approved respirators in order to perform sand-covering operations as specified herein. The contractor may at his own option retain the services of a certified industrial hygienist to verify that the tomb interiors are suitable for unprotected human occupancy, and in such case the mandatory requirements for protective suits and respirators shall be relieved. The contractor shall be solely responsible for his own safety and that of his workers, even if it requires safety measures that are in excess of those that are described herein. The contractor shall hold Historic Newton, the City of Newton, and the Engineer harmless from claims made regarding the safety of workers on this project.

PART 2 - PRODUCTS

2.1 WORKER PROTECTION

- A. The contractor shall provide all necessary equipment and materials required for the protection of workers entering the tombs and for the tombs' proper and safe ventilation. All protection and equipment shall meet applicable OSHA and Board of Health standards for working with and within contaminated environs and shall be properly cleaned and/or disposed of following completion of the work.

2.2 BUILDING MATERIALS

- A. Provide referenced building materials in accordance with the Specification Sections applicable to the related work.

PART 3 - EXECUTION

3.1 INSPECTION AND DOCUMENTATION OF CONTENTS

- A. Notify the Engineer as well as the Owner at least one week in advance as to the scheduled day and time that each of the tombs will be opened and accessed. The Engineer and Owner reserve the right to have an Archaeologist on site to assist in the documentation of the tomb contents and monitoring of the work.
- B. Upon accessing the tomb interior, make note of the contents (such as wood, pottery, bones and fragments) that are generally lying on the tomb's earthen floor. Identify a path by which the tomb can be entered without disturbing the contents.
- C. Enter the tomb without disturbing the contents and make a photographic survey of the contents and the tomb interior. Measure the tomb size and the maximum height of contents and make a chalk marking on the tomb wall that is 6" higher than the highest point of the contents.

3.2 SAND COVERING AND CREATION OF A WORKING SURFACE

- A. Carefully hand-deposit sand around and over the tomb contents, using no more than a shovel to carefully and loosely deposit the sand without in any way disturbing the contents. Proceed in this manner until the each of the contents is covered by at least three inches of sand, following the general contour of the contents. Work sand into any voids that exist below or between the contents so that the contents will not be disturbed by shifting of the sand when more overburden and foot traffic is imposed above.
 - 1. At Tomb S-B, only, in the South Parish Burying Ground, a layer of plastic membrane shall be laid over the remains prior to the placement of the sand covering.
- B. Where tomb walls are to be reconstructed place plywood against the inside surfaces of the tomb to provide retention for the sand when the side walls are disassembled, cutting it to follow the profile of the initial 3" covering of the contents and running up to the top of the proposed concrete grade beam elevations. Transfer the chalk elevation marks from the wall to the plywood.
- C. Continue to deposit sand, using shovels, conveyor (placed into the tomb but not supported over the contents and/or screed or rake, hand compacting the sand with each 3" lift. Create a uniform, mostly flat surface at an elevation of 6" above the top of the highest contents (at the chalk marks on the plywood or tomb walls).
- D. Lay flat sheets of protective plywood over the sand, to be used as a working surface and removed later.

3.3 TOMB RECONSTRUCTION

- A. Following removal of the roof, slowly dismantle the tomb walls where indicated until the top of the side-bracing plywood is reached. Provide cross-ties through the middle of the tomb and/or struts to the outside as needed to sufficiently brace the plywood so that it acts as a retainer for the sand within the tomb. Continue removing the walls until the desired elevations are reached.
- B. Reconstruct the brick exterior walls at least up to the elevation of the current top of sand, then remove the wall-plywood braces and cut the wall plywood away along an elevation of 1" above the top of sand, then continue building the walls.
- C. Upon completion of the walls and roof replacement, remove the protective flat plywood from the interior and place the remaining sand up to a depth of the lesser of 4-feet from the tomb floor or at the elevation average adjacent grade along perimeter of the tomb, as indicated on the drawings.
 - 1. At Tomb S-B, only, in the South Parish Burying Ground, the sand shall be completely removed from the tomb interior and the plastic covering discarded.

END OF SECTION

SECTION 02485

SEEDING

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

- A. Seeding of all areas designated as lawn.

1.2 RELATED SECTIONS

- A. Section 02205 - Excavation and Backfill

1.3 STANDARDS

- A. The following related items are included herein and shall mean:

- 1. AOAC: Association of Official Agricultural Chemists
- 2. ASTM: American Society of Testing and Materials

1.4 SUBMITTALS AND SAMPLES

- A. Samples: Prior to ordering the below listed materials, submit representative samples to Engineer for selection and approval, in accordance with requirements of General Conditions and Supplementary General Conditions as follows. Do not order materials until Engineer's approval has been obtained. Delivered materials shall match the approved samples.

- 1. Screened Loam: The Contractor shall provide representative samples for testing and approval. Two test samples of ten pounds (10) each shall be taken and analyzed from each potential loam source. Contractor shall deliver samples to a testing laboratory approved by the Engineer and shall have testing reports sent directly to the Engineer and pay all costs. Report shall be submitted at least one month before any loaming is to be done and shall include the following tests and recommendations:
 - a. Mechanical and chemical analysis shall be by a public extension service agency or a certified private testing laboratory in accordance with the current "Standards" of the Association of Official Agricultural Chemists.
 - b. Soil Test Report shall include a mechanical sieve analysis with soil classification. Organic content and Cation Exchange Capacity (CEC) shall be reported. Chemical analysis shall include pH (1:1 soil/water ratio), buffer pH, Soluble Salts, (1:2 soil/water ratio), Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Magnesium, Manganese, Ferric Iron and Sulfate.
 - c. Soil Test Report shall clearly recommend appropriate application of limestone, fertilizer and other soil additives required to correct soil deficiencies and to adjust loam as necessary to support successful turf growth.

- B. Certificate of Compliance: Submit six (6) copies of the manufacturer's Certificate of Compliance to the specifications with each shipment of each type of seed. These certificates shall include the guaranteed percentages of purity, weed content and germination of the seed and also the net weight and date of shipment. No seed may be sown until the Contractor has submitted the certificates and they have been approved.

- C. Maintenance instructions for lawns: Submit three (3) copies.

1.5 CERTIFICATE OF ACCEPTANCE

- A. The Engineer will inspect all work upon the written request of the Contractor received at least ten days before the anticipated date of inspection.
- B. Seeded lawns shall be reviewed for acceptance only after all areas have a close stand of grass with no bare spots greater than two inches in diameter, at least 90% of the grass established shall be permanent grass species and the lawns have been maintained for a minimum of ninety (90) days prior to inspection.
- C. Furnish full and complete written instructions for maintenance of the lawns to the Owner at the time of acceptance.
- D. Engineer's inspection shall determine if the grass is acceptable and whether maintenance shall continue in any part.
- E. After all necessary corrective work and clean-up have been completed and maintenance instructions have been received by the Owner, the Engineer will certify, in writing the acceptance of the lawns. The Contractor's responsibility for maintenance of lawns or parts of lawns shall cease on receipt of the written Certificate of Acceptance.

1.6 EXAMINATION OF CONDITIONS

- A. All areas to be seeded shall be inspected by the Contractor before starting work and any defects, such as incorrect grading, drainage problems, etc., shall be reported to the Engineer prior to beginning this work. The commencement of work by the Contractor shall indicate his acceptance of the areas to be seeded, and he shall assume full responsibility for the work of this Section.

1.7 QUALITY ASSURANCE

- A. Storage and Handling: Store and handle packaged materials in strict compliance with manufacturer's instructions and recommendations. Protect all materials from damage, injury and theft.
- B. Subcontractor Qualifications: Landscape subcontract work shall be assigned to an experienced and qualified landscape subcontractor with a minimum of five (5) years of experience and who employs experienced employees under the full time supervision of a qualified foreman.

PART 2 - PRODUCTS

2.1 SCREENED LOAM

- A. Screened loam shall be a "sandy loam" determined by mechanical analysis ASTM D-422 and based on the "USDA Textural Classification." It shall conform to the following sand, silt and clay distribution for material passing the #4 sieve:

Textural Classification	% Total Weight
Sand (0.05-2.0 mm dia. range)	less than 52%
Silt (0.002-0.05 mm id. range)	28-50%
Clay (less than 0.002 mm id. range)	7-27%

Soil test shall include breakdown of sand and subfractions from very coarse to very fine.

- B. Maximum grain size shall be one and one quarter inches largest dimension. The maximum retained on the one-quarter inch sieve shall be 20% by weight of the total sample. Test shall be combined hydrometer and wet sieving in compliance with ASTM D-422 after destruction of organic matter by ignition.

- C. Screened loam shall be free from plants and their roots and other debris and extraneous matter. It shall be uncontaminated by salt, water, foreign matter and substances harmful to plant growth. The electrical conductivity (EC squared) of a 1:2 soil/ water suspension shall be equal to or less than 1.0 milliohms/ cm. (test material passing #4 sieve).
- D. Material shall consist of natural topsoil, free from subsoil, obtained from an area which has never been stripped. It shall be removed to a depth of one (1) foot or less if subsoil is encountered. Loam shall be of uniform quality screened free of hard clods, stones greater than 1/2 inch, stiff clay, hardpan, sods, partially disintegrated stone, lime, cement, ashes slag, concrete, tar residues, tarred paper, boards, chips, glass, sticks, or any other undesirable material.
- E. Screened loam shall have an acidity range of pH 6.0 to pH 6.5 and shall contain not less than 5% nor more than 10% organic matter as determined by the loss on ignition of oven dried samples. Test samples shall be oven-dried to a constant weight at a temperature of 230 degrees F., plus or minus 9 degrees. To adjust organic matter content, the soil may be amended, prior to site delivery by the addition of composted humus. Use of organic amendments is acceptable only if random soil sampling indicates thorough incorporation.
- F. Screened loam shall have a Cation Exchange Capacity (CEC) of between 10 and 15.
- G. All screened loam shall be provided from off site sources. The screened loam must be brought to the site, meeting all specification requirements. There must be no mixing or amending of soil on site. No loam shall be spread prior to screening. The screened loam must not be handled or moved when in a wet or frozen condition.
- H. To assure screened loam purchased fulfills specified requirements regarding textural analysis, organic matter content, CEC, and pH, soil testing results will be obtained by the Contractor and submitted to the Engineer for approval one month before any soil is delivered to the site.

2.2 SEED

- A. Lawn seed: Fresh, clean, and new crop seed mixture. Grass shall be of the previous year's crop and in no case shall weed seed content exceed 1% by weight. The seed shall be furnished and delivered in the proportion specified below in new, clean, sealed and properly labeled containers. All seed shall comply with State and Federal seed laws. Submit manufacturer's Certificates of Compliance. Seed which has become wet, moldy or otherwise damaged will not be accepted.
- B. Lawn seed shall be composed of the following varieties which shall be mixed in the following proportions and shall test to minimum percentages, purity and germination specified. For Lawns Proportion by weight Germination minimum / Purity minimum

Creeping Red Fescue or Chewing's Fescue	50%	85%	95%
Kentucky Bluegrass (Flyking)	20%	90%	90%
Manhattan Perennial Rye	25%	90%	90%
Red Top	5%	85%	92%

2.3 FERTILIZER

- A. Granular, non-burning product composed of not less than 50% organic slow acting, guaranteed analysis professional fertilizer.
 - 1. Starter fertilizer containing 20% nitrogen, 26% phosphorus and 6% potash.
 - 2. Top dressing fertilizer containing 31% nitrogen, 3% phosphorus and 10% potash.
 - 3. Type and brand of fertilizer shall be documented as to not being deleterious or acidic to marble or other stonework.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine finish surfaces, grades, topsoil quality and depth. Do not start seeding work until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Loosen topsoil of lawn areas to minimum depth of 4". Remove stones over 1" in any dimension.
- B. Grade areas to be seeded to a smooth, free draining even surface with a loose, moderately coarse texture. Remove ridges and fill depressions as required to drain.

3.3 INSTALLATION

- A. Seed immediately following fine grading of soil. Spring seeding between April 1 and June 1 and Fall seeding between August 15 and October 15.
- B. There shall be 6" of seeded loam above the tombs.

3.4 MAINTENANCE

- A. Maintain seeded areas until completion and acceptance of the entire project.

END OF SECTION

SECTION 03300

CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

- A. The work of this section includes, but is not limited to, the following:
 - 1. Cast in place concrete footings.

1.2 PROJECT CONDITIONS

- A. Cast in place concrete shall be placed and cured under conditions that are conducive to good curing and placement and which conform to ACI standards for the methods employed.

1.3 SUBMITTALS

- A. Submit the following items to the Engineer for review:
 - 1. Concrete Mix Design.
 - 2. Product Data for all accessories, admixtures and inserts.

1.4 REFERENCES

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 302 - Guide for Concrete Floor and Slab Construction.
- C. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- D. ACI 305R - Hot Weather Concreting.
- E. ACI 306R - Cold Weather Concreting.
- F. ACI 308 - Standard Practice for Curing Concrete.
- G. ACI 318 - Building Code Requirements for Reinforced Concrete.
- H. ANSI/ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- I. ASTM C33 - Concrete Aggregates.
- J. ASTM C94 - Ready-Mixed Concrete.
- K. ASTM C150 - Portland Cement.
- L. ASTM C260 - Air Entraining Admixtures for Concrete.
- M. ASTM C494 - Chemicals Admixtures for Concrete.
- N. ACI SP-66 - American Concrete Institute - Detailing Manual.
- O. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.

P. CRSI - Concrete Reinforcing Steel Institute - Manual of Practice.

Q. CRSI - Placing Reinforcing Bars.

1.5 SUBMITTALS

A. Product Data: Provide product data for all accessories, admixtures and inserts.

B. Shop Drawings: Fully show all bar sizes, spacing, locations, and quantities of reinforcing steel and wire fabric. Provide bending and cutting schedules.

1.6 RECORD DOCUMENTS

A. Accurately record actual locations of embedded utilities and components which are concealed from view.

1.7 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301.

B. Conform to ACI 305R when concreting during hot weather.

C. Conform to ACI 306R when concreting during cold weather.

D. Detailing and construction of formwork, shoring and bracing shall be sufficient to maintain required alignments and surfaces. All work shall conform to ACI 318 and ACI 301, the Massachusetts State Building Code, and accepted construction practice.

E. Reinforcing steel detailing and installation shall be in accordance with CRSI - Manual of Standard Practice, ACI SP-66, and ACI 318.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

A. Cement: ASTM C150.

B. Fine and Coarse Aggregates: ASTM C33.

C. Water: Clean and not detrimental to concrete.

2.2 ADMIXTURES

A. Air Entraining admixture: ASTM C260.

B. Chemical: ASTM C494 Type A - Water Reducing

C. No admixtures shall contain calcium chloride.

2.3 REINFORCEMENT AND ACCESSORIES

A. Reinforcing Steel: ASTM A615, 60 ksi yield grade; deformed billet steel bars, epoxy coated in accordance with ASTM A775.

B. Tie Wire: Minimum 16 gage annealed type, epoxy coated.

C. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor barrier puncture.

2.4 CONCRETE MIX

- A. Standards: Mix concrete in accordance with ACI 304. Deliver concrete in accordance with ASTM C94. Select proportions for normal weight concrete in accordance with ACI 301 Method 1.
- B. Mix Requirements:
 - 1. Cast in Place Concrete shall have the following properties:

Compressive Strength (28 day)	4,000 psi
Water/Cement Ratio (maximum)	0.40 by weight outdoors
Aggregate Size	1" maximum
Air Entrainment	4% to 6% percent
Water Reducing Agent	As Required
Slump	to suit placement
 - 2. Use accelerating admixtures in cold weather when approved by Engineer but do not relax other cold weather concrete placement requirements.
 - 3. Do not use calcium chloride containing admixtures.
 - 4. Add air entraining agent to normal weight concrete mix for work exposed to exterior.

2.5 FORM MATERIALS AND ACCESSORIES

- A. Plywood: Douglas Fir or Spruce species; sheathing grade; clean, smooth sheets with true edges.
- B. Form Ties: Snap-off type, galvanized metal, fixed or adjustable length, with waterproofing washer, free of defects that could create 1" of larger holes or defects in the concrete surface.
- C. Form Release Agent: Colorless mineral oil which will not stain concrete, or absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.
- D. Corners: Chamfer, rigid plastic or wood strip type, 3/4" x 3/4", maximum possible lengths.

PART 3 - EXECUTION

3.1 ERECTION OF FORMWORK

- A. Hand trim sides and bottom of earth forms where used. Remove loose soil prior to placing concrete.
- B. Erect formwork, shoring and bracing in accordance with ACI 301 to achieve required geometry and stability.
- C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Align joints and make watertight. Keep form joints to a minimum. Provide chamfer strips on external corners of foundation walls.
- D. Apply form release agent on formwork in accordance with manufacturer's recommendations. Do not apply form release agent where concrete surfaces will receive applied coverings which are effected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.2 PLACEMENT OF REINFORCING STEEL AND TENSION RODS

- A. Place, support and secure reinforcement and anchor rods against displacement. Do not deviate from required position. Do not displace or damage vapor barrier where present. Accommodate placement of formed openings and inserts.

3.3 CONCRETE PLACEMENT

- A. Place concrete in accordance with ACI 304 or ACI 301. Notify Engineer minimum 24 hours prior to commencement of operations.
- B. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints, and waterstops are not disturbed during concrete placement.
- C. Maintain records of concrete placement: Record date, location, quantity, air temperature, and test samples taken.

3.4 FORM REMOVAL

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- B. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

3.5 CONCRETE FINISHING, CURING AND PROTECTION

- A. Provide formed concrete surfaces to be left exposed concrete walls with smooth rubbed finish. Top surface shall have a floated finish.
- B. Membrane-cure concrete for not less than 7-days.

END OF SECTION

SECTION 04500

MASONRY RESTORATION

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

- A. Dismantling and reconstruction of brick and stone tomb walls.
- B. Dismantling and reconstruction of brick and stone table-top and obelisk tomb monuments.
- C. Cutting, pointing and localized repair of exterior masonry to remain.
- D. Localized repair of existing masonry vaults to remain.
- E. Repair of damaged stone units.
- F. Removal and replacement of stone stair cover slabs.

1.2 SCOPE OF WORK

- A. The Work shall include all masonry work, the nature and quantities of which are detailed and described herein and on the contract drawings.
- B. The base bid shall include all masonry work, the nature and quantities of which are detailed and described herein and on the Contract Drawings.
- C. The masonry Contractor shall be responsible for coordinating and insuring that all flashing and weep holes are installed.

1.3 RELATED SECTIONS

- A. Section 02050 – Dismantling and Demolition
- B. Section 02205 – Excavation and Backfill.
- C. Section 02210 – Temporary Support and Protection
- D. Section 03300 – Cast-in-Place Concrete
- E. Section 04550 – Grave Marker Conservation
- F. Section 05500 – Structural Metal
- G. Section 05750 – Cast Iron Door Covers

1.4 REFERENCES

- A. Comply with the following standard material specifications:
- B. ASTM C33 - Concrete Aggregates
- C. ASTM C141- Hydrated Hydraulic Lime
- D. ASTM C144 - Sand for Mortar and Grout
- E. ASTM C216 - Fired Clay Units

- F. ASTM C270 - Mortar and Mortar Testing for Unit Masonry
- G. ASTM C1713 – Mortars for the Repair of Historic Masonry
- H. ASTM A276, Type 304 - Threaded Round Stainless Steel Bar Stock.
- I. ACI 301 - Concrete Mix Design and Placement
- J. ASTM C144 - Sand for Mortar and Grout
- K. ACI 318 - Building Code Requirements for Reinforced Concrete for Buildings
- L. ACI 530 - Building Code Requirements for Masonry Structures.
- M. ACI 530.1 - Specifications for Masonry Structures.
- N. ASTM A82 - Cold-Drawn Steel Wire for Concrete Reinforcement.
- O. ASTM A123 - Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products.
- P. ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate.
- Q. ASTM A525 - Steel Sheet, Zinc Coated, (Galvanized) by the Hot-Dip Process.
- R. ASTM A580 - Stainless and Heat-Resisting Steel Wire.
- S. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- T. ASTM B370 - Copper Sheet and Strip for Building Construction.
- U. ASTM C55 - Concrete Building Brick.
- V. ASTM C90 - Load-Bearing Concrete Masonry Units.
- W. ASTM C216 - Facing Brick (Solid Masonry Units Made From Clay or Shale).
- X. ASTM C652 - Hollow Brick (Hollow Masonry Units Made From Clay or Shale).
- Y. IMIAC - International Masonry Industry All-Weather Council: Recommended Practices and Guide Specification for Cold Weather Masonry Construction.
- Z. UL - Fire Resistance Directory.

1.5 SUBMITTALS

- A. Submit the following items to the Engineer for review:
 - 1. Test reports required as per paragraph 1.6 - Quality Control.
 - 2. Product Data: Submit manufacturers' technical data for each product indicated including recommendations for their application and use. Include test reports and certifications substantiating that products comply with requirements.
 - 3. Product data sheets and samples.
 - 4. Concrete mix design where needed.

- B. Submit shop drawings and samples for all masonry fabrications.
 - 1. Replacement stone sample where appropriate.
 - 2. Information directly from the brick manufacturer which is needed to re-order the exact brick for future repairs.
- C. Perform field-constructed mock-ups for review by the Engineer:
- D. Produce mortar and grout samples in the form of 2" x 2" x 2" flat slabs, placed against wooden side forms and backing, for easy removal of cured sample. Provide 8 samples per mortar and grout type taken on different days and cured under conditions that match field conditions to testing laboratory for compression testing. Provide at least four 2" x 2" x 2" field cut samples of existing mortar to the testing laboratory for comparative compression testing. Contractor shall arrange for and pay for all testing and shall submit results at 7 days and at 28 days to the Engineer. Adjustments in mix and re-tests shall be made as required at no additional cost to the owner. Test existing mortar samples and trial mixes at least three weeks before commencing masonry work.
- E. Samples of new structural pointing and patching mortars and grouts cured in same fashion as will be applied to structure.
- F. Mortar colors and textures shall match existing cleaned mortar surfaces.
- G. 24"x24" raking (joint cutting) test/sample patches for (as preparation for repointing work) to be provided by the Contractor at exterior and interior wall surfaces and located as agreed with Engineer on site. No raking or joint cutting shall be started until samples are approved.
- H. 24"x24" pointing / repointing test/sample patches to be provided by the Contractor at exterior and interior wall surfaces and located at agreed with the Engineer on site. No repointing shall be started until samples are approved.
- I. Four completed hole and plug mortar applications to simulate completed retrofit facing tie installations.
- J. Work that does not match the approved sample panels shall be rejected and redone. The Contractor shall be responsible for producing as many sample panels as necessary to provide a match of existing adjacent work that meets the satisfaction of the Engineer.

1.6 QUALITY CONTROL

- A. Comply with all referenced standards for the products employed.
- B. Comply with requirements of Massachusetts State Building Code.
- C. Coordinate times of Special Inspections to comply with Massachusetts State Building Code.
- D. All masonry work shall be performed by individuals with more than ten year well-referenced experience with historic brick and stone masonry restoration.
- E. During periods of cold or questionable weather, keep a log of work including air temperature and weather conditions, work started and completed per day, and tests taken. No work shall be done when the ambient temperature of the structure or the air is less than 45 degrees F.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to site in manufacturer's original and unopened containers and packaging, bearing labels as to type and names of products and manufacturers.
- B. Protect mortar and other cementitious materials from deterioration by moisture and temperature. Store in a dry location or in waterproof containers. Keep containers tightly closed and away from open flames. Protect liquid

components from freezing. Comply with manufacturer's recommendations for minimum and maximum temperature requirements for storage.

- C. Restore any damage to site caused by storage, mixing or construction work.
- D. Packing and Loading of Materials: Carefully pack and load finished stone for shipment using all reasonable and customary precautions against damage in transit. Do not use any material that may cause staining or discoloration for blocking or packing.
- E. Store brick in a way that is conducive to pre-wetting and moisture acclimation, removing plastic wrapping. Spray with water at the beginning and end of each work day.
- F. Store cementitious materials off the ground, under cover and in dry location.
- G. Store aggregates where grading and other required characteristics can be maintained.
- H. Protect mortar materials and stone accessories including metal items to prevent deterioration by corrosion and accumulation of dirt.

1.8 SEQUENCING/SCHEDULING

- A. Order replacement brick units (if needed) at the earliest possible date, to avoid delaying completion of the Work.
- B. Utilize sequence that best suits the work.
- C. The existing exterior brickwork is in a dangerously unstable state. Schedule work to remove and/or at least brace all unstable masonry elements by the earliest possible opportunity in order to make conditions safe.

1.9 PROJECT CONDITIONS

- A. Do not repoint mortar joints or repair masonry unless air temperatures are between 40°F (4°C) and 80°F (27°C) and will remain so for at least 48 hours after completion of work. During periods of questionable weather keep a log of work including air temperature and weather conditions, work started and completed per day and tests taken.
- B. Prevent grout or mortar used in repointing and repair work from staining face of surrounding masonry and other surfaces. Remove immediately grout and mortar in contact with exposed masonry and other surfaces.
- C. Protect sills, ledges and projections from mortar droppings.
- D. Protection: Protect and maintain all work in a dry safe condition for the duration of the work.
- E. Protection of Work: Cover tops of walls with heavy waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides and hold cover in place.
 - 2. Staining: Prevent grout or mortar from staining the face of stone to be left exposed. Remove immediately grout or mortar in contact with such stone.
 - 3. Protect surrounding surfaces from rain-splashed soil and mortar splatter by means of coverings spread on ground and over wall surface. Protect sills, ledges and projections from droppings of mortar.

- F. Remove all masonry determined to be frozen or damaged by freezing conditions.
- G. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface. Protect sills, ledges and projections from droppings of mortar.
- H. Protection During Cleaning: Protect persons, motor vehicles, construction site and surrounding buildings from injury resulting from stone cleaning work.
 - 1. Protect all non-stone surfaces. Review all protective measures with Engineer.
 - 2. Protect all non-masonry surfaces. Review all protective measures with Architect.
 - 3. Prevent cleaning solutions from coming into contact with pedestrians, motor vehicles, plant materials, buildings and other surfaces that could be injured by such contact.
 - 4. Do not clean stone during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
 - 5. Dispose of run-off from cleaning operations by legal means and in a manner which prevents soil erosion, undermining of paving and foundations, and damage to adjacent landscaping.

1.10 COLD WEATHER PROTECTION

- A. Do not perform any wet masonry work when temperature of surrounding area is below 40 degrees F., or below 45 degrees F. and falling, or forecast by public news media to fall to or below 35 degrees F. within 24 hours without temporary heated enclosures or without heating materials or other precautions necessary to prevent freezing. Minimum temperature within heated enclosure shall be 40 degrees F. Do not use masonry materials which are likely to contain frost. Do not use accelerating ingredients with any mortar. Mortar shall harden without freezing and with no damage from frost. Protect all work against freezing for not less than 48 hours after installation.
- B. Do not lay masonry units that are cold and wet or frozen. Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen setting beds.
- C. Comply with requirements of International Masonry All-Weather Council's "Guide Specification for Cold-Weather Masonry Construction". Heat materials and provide temporary protection of completed portions of stone work.

1.11 HOT WEATHER PROTECTION

- A. Protect masonry work in hot weather to prevent excessive evaporation of setting beds and grout. Provide artificial shade, wind breaks and use cooled materials as required. Use fresh mortar. Discard mortar that has stiffened due to hydration.

PART 2 - PRODUCTS

2.1 MASONRY UNITS

- A. Brick: Re-used or new as needed, or ASTM C216, Grade SW, Low Absorption. Minimum strength shall be 8,000 psi, maximum water absorption shall be 8%. Provide new brick only as required if existing units cannot be salvaged, to match size and shape of existing surrounding brick. Color shall be one shade darker than the existing brick in its present condition.
- B. Stone: Re-use original building stone or replicated new units only where original units cannot be re-used. Clean, protect, repair and drill existing stone units (as needed) in accordance with this section.
- C. Stone Slabs: Dimensional stone roof slabs belt units: Natural cleft Black Munson Slate in Dimensions required with broken and 'rockfaced' edges as supplied by: Portland Munson Slate Company, Mr. John Tatko or approved equal to match the existing stone.

2.2 MORTAR AND GROUT

A. Mortar and Grout Materials:

1. Cement: Type 1 white and/or gray cement as follows: Portland Cement: ASTM C150 complying with staining requirements of ASTM C91 for a low-alkali cement having a maximum of 0.60% equivalent alkalis. Mortar shall show no efflorescence when cast in a 2" x 7" x 1/2" slab consisting of 1 part of the cement to be used, 2 parts Ottawa plastic mortar sand and distilled water, and subjected to a 7 day "wick test" conforming to ASTM C67.
2. Hydrated Lime: ASTM C207, Type S.
3. Coarse Aggregate For Grout: ASTM C-33, 3/8" dia. minimum gravel or stone.
4. Fine Aggregate / Sand:
 - a. ASTM C144, washed, clean and free of salts. "Bulk" or moisten sand before mixing with binder (proportions based on damp sand)
 - b. For use in mortar that will be used for pointing that is exposed to public view sand shall match the sand in the original mortar in color, coarseness and gradation, subject to review by the Engineer.
5. Water: Potable, clean, free of oils, acids, alkalis and organic matter.
6. Grouting Aid: Equal or Equivalent to "Interplast-N" Expanding / Fluidifying Grouting Aid as manufactured by the Sika Corporation of Lyndhurst, NJ.
7. Crack Seal for Lime-Cement Grout Injection: Lime-cement mortar to stay in place or removable caulking or jute.

B. Provide mortar conforming to ASTM C1713 "Proportion Specification" in the formulation(s) as listed below.

1. Structural mortar for Masonry Reconstruction and Re-setting shall be 1 part Portland Cement, 1 part Hydrated Lime and 6 parts Bulk Sand.

Where exposed, mortar sand shall be properly selected and blended to match the color, texture and appearance of the existing mortar sand, and when used, Portland Cement shall be a combination of white and gray cement that best suits the color matching of the existing mortar binder. Where additionally needed, up to 10% by mineral oxide pigment by weight of binder may be added to best match the color of the original mortar. Pigments shall be chemically pure mineral oxides, alkali proof and light fast, and shall be equal or equivalent to "Solomon Grind" as manufactured by Chem Services Inc, of Springfield, IL.
2. Structural mortar for repair and pointing of existing masonry shall be 1 part Portland Cement, 3 parts Hydrated Lime and 12 parts Bulk Sand.

Where visually exposed, mortar sand shall be properly selected and blended to match the color, texture and appearance of the existing mortar sand, and when used, Portland Cement shall be a combination of white and gray cement that best suits the color matching of the existing mortar binder. Where additionally needed, up to 10% by mineral oxide pigment by weight of binder may be added to best match the color of the original mortar. Pigments shall be chemically pure mineral oxides, alkali proof and light fast, and shall be equal or equivalent to "Solomon Grind" as manufactured by Chem Services Inc, of Springfield, IL.

3. The following properties shall be determined in accordance with ASTM C1713 for five trial samples of each of the four mortar formulations, cured to the minimum CT:
 - a. Minimum Compressive Strength F_c (psi).
 - b. Maximum Compressive Strength F_{cmx} (psi).
 - c. Water Vapor Permeability WVP (perms).

2.3 MORTAR AND GROUT MIXING

- A. Thoroughly mix mortar ingredients in accordance with ASTM C270 in quantities needed for immediate use.
- B. Mortar colors shall be chosen to match cleaned stone and mortar surfaces. Chemically clean an 18" square area of wall at a location to be designated in the field by the Architect for use in color comparison.
- C. Do not use anti-freeze compounds to lower the freezing point of grout.
- D. The contractor shall review the water content and any required adjustments along with proposed products with the Engineer. Contractor shall then submit a record mortar mix design along with product data sheets to the Engineer for verification, review and approval before beginning any mixing or installation.

2.4 REINFORCEMENT, ANCHORAGE AND ADHESIVE PRODUCTS

- A. Provide stainless steel ties and anchors as indicated on the contract drawings, meeting the requirements of ASTM A276, Type 304/316.
 1. Ties and anchors shall be threaded over their entire lengths unless otherwise noted.
 2. Pins for sealant-setting to stonework shall be straight, unthreaded rod stock.
 3. Provide steel fabrications as detailed on the Structural Drawings. Fabrications shall be dimensioned and/or modified as needed to suit field conditions and shall be fabricated or manufactured per approved shop drawings only.
- B. Sealant for Setting of Pins and Sealing Joints where indicated::
 1. Provide 2-component polyurethane complying with ASTM C-920 and Federal Specification TT-S-00227.
 2. Provide closed cell backer rod at all sealant joints. Backer rod shall be carefully sized per sealant manufacturer instructions for each Sealed Joint.
 3. Sealant shall be equal or equivalent to the Sika or Tremco product lines.
- C. Epoxy Adhesive for Injection of Cracks in Damaged Stone Units and for adhering loose shards and repair Dutchmen: Equal or equivalent to "Sikadur Injection Gel" as manufactured by the Sika Corporation of Lyndhurst, NJ or approved equal. Crack Sealant for Epoxy Injection: "Sikadur 33" as manufactured by the Sika Corporation of Lyndhurst, NJ, or approved equal, along with ports as required.

2.5 MISCELLANEOUS PRODUCTS

- A. Provide Plastic Shims as needed for initial leveling and floating of stone units into bedding mortar. These shall be a stone-suitable product that is equal or equivalent to those supplied by Korolath of New England, Woburn, MA.

2.6 MORTAR WASHDOWN CLEANER

- A. For non-pigmented mortars, use equal or equivalent to “Sure Klean 600 Detergent” as manufactured by ProSoCo Corp. For pigmented mortars use equal or equivalent to “Vana Trol” as manufactured by ProSoCo Corp.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS OF THE WORK

- A. Because portions of the exterior and interior load bearing masonry will be removed and replaced under this project it is critical that the vertical support of the floors and the overall stability of the structure be maintained. Sequencing of the dismantling and reconstruction shall be done in such a way that minimizes the risk to the structure and the potential for structural instability. Sequencing shall account for prevailing weather patterns, removal and storage of other materials, and for other operations. Masonry removal and replacement shall be done sequentially by vertical section and shall follow each other as closely as possible. It shall be the responsibility of the General Contractor to determine how large the sequential sections can be and the requirements of the scheduling. The masons shall coordinate all efforts with the General Contractor and related trades to ensure that the dismantling and reconstruction operations flow as smoothly as possible, in order to help minimize the time periods that portions of the structure will be missing.
- B. An effort shall be made to minimize the need for on-site storage of masonry materials, close coordination of the field personnel, material suppliers and the general contractor shall be maintained to provide for a steady flow of materials on a close to as-needed basis.
- C. Document all existing masonry during dismantling, including wall thicknesses, pilaster sizing and layout, window and door openings, bearing locations and critical coursing elevations. All documentation shall be recorded on sketches with true dimensions, stored both on site and offsite. All reconstructed work shall geometrically replicate the original construction.
- D. All dismantled work shall be fully documented and the original geometry of the structure (before bulging and sagging) be established. Reconstruction shall be done to replicate original geometry.
- E. Inspect all masonry within work areas, identify all required repairs and removals.
- F. Perform all other indicated masonry work in accordance with the requirements of this section and all references.
- G. Perform all required repairs to stone units in accordance with this section and Section 04550: Grave Marker Conservation.

3.2 REMOVAL OF DESIGNATED OR DAMAGED MASONRY

- A. Provide and install all temporary shoring, bracing and support to surrounding construction before beginning removal. Removal shall be done slowly and methodically to maintain stability to all remaining elements at all times. Contractor shall be responsible for maintaining integrity and safety of surrounding construction, in general, during work per the requirements of Section 02210.
- B. Carefully remove designated masonry, maintaining support to all surrounding and supported elements that are otherwise dependent upon the masonry being removed for support or stability. Following removal of the exterior grade veneer units, remove all remaining back-up masonry, storing both in separate locations. Clean and store all salvageable brick units for re-use, provide replacement bricks for units that cannot be re-used.
- C. Following removal of designated masonry, inspect and remove additional masonry that is loose, damaged or can be separated with unassisted hands.
- D. Clean the exposed surfaces of the remaining material, and remove shards of material which have become loose during work or have shifted from their proper positions. Notify Engineer immediately of the number of brick wythes that need to be removed before proceeding with work.
- E. Notify the Engineer of any masonry beyond immediate work area, which becomes loosened during work. Stop work immediately, provide additional bracing and review with Engineer before resuming.

- F. Protect the existing interior structure from the external weather and from dust and debris caused by these operations. Provide weather protection as needed until the external envelope of the tomb is restored.

3.3 GROUT INJECTION OF CRACKS AND SMALL HOLES AND VOIDS IN EXSTING MASONRY TO REMAIN

- A. The following pertains to grout injection of structural cracks of up to 2" in width.
- B. Mechanically widen outer edges of structural cracks and drill ¼" diameter holes at 6" to 12" o.c. and install grouting ports. Seal surface of crack and around ports with removable sealant or jute. Leave bottom 4" of crack open and seal after water flushing. Removable Crack Seal for cementitious grouting shall be placed on both sides of the wall or crack to be injected.
- C. Flood crack with water at 10 psi maximum pressure and allow deleterious materials and any sand or masonry residue to flow out at bottom. Seal remaining drainage opening at bottom of crack with removable Crack Seal for cementitious grouting.
- D. Pressure-inject grout into crack, starting at bottom and progressing upward until all ports are filled and plugged. Injection shall be performed within 30 minutes of water saturation but after all free water has run out. Injection pressure shall not exceed 10 psi. Lifts shall not exceed 48" in height.
- E. Remove ports and removable Crack Seal and inspect penetration of crack. Begin remainder of restoration work if acceptable, or re-inject if not well penetrated.
- F. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

3.4 FILLING OF LARGE VOIDS IN EXISTING MASONRY TO REMAIN

- A. Expose the core, cell or void as much as possible and provide a cleaning port at the top and bottom of the crack or void, or at 4" max. o.c. if greater. Flood crack with water at 10 psi maximum pressure and allow deleterious materials and any sand or masonry residue to flow out at bottom.
- B. Hand rub cement paste slurry on surfaces against which to be filled, if possible, and fill the excavated void(s) by one or more of the following methods as may apply:
 - 1. Hand pack structural mortar into shallow voids and cracks between ¼" and 2" in width and less than 6" depth, adding small stone shards where the overall thickness of mortar exceeds 1".
 - 2. Form open sides and ports and gravity feed coarse grout into voids, hand tamping with a rod or wooden pole.
- C. Limit lift heights to 24", allowing enough curing time between lifts for the grout to set to sufficient stiffness that it will not laterally load the sides against which it was placed, even when another lift is placed over it.
- D. Work and vibrate wet grout with a thin rod during deposition, but do not over-work to the point that air bubbles or voids will form.
- E. Form or strike exposed surfaces of grout fills 1" inside of liner surface to allow for final pointing. Clean surfaces of stones and surrounding work following each day's operations. Moist cure completed work for not less than 48 hours.
- F. Clean surfaces of stones and surrounding work following each day's operations. Moist cure completed work for not less than 48 hours.
- G. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

3.5 EXCAVATION AND REPAIR OF CRACKS IN BRICK MASONRY

- A. Diagonal and Vertical Crack Repair

1. Except at cracks that run in the extreme corners of the tower, carefully remove two wythes of interior brickwork along diagonal step and vertical cracks to expose remaining depths of cracks in back-up construction.
2. Remove all loose mortar and residue from remaining surfaces within crack excavations without disturbing or weakening or destabilizing the masonry. Employ a "pressure washer" as needed and regulate the nozzle pressure to clean but not damage the surfaces. Nozzle pressure shall be in the range of 600 psi with a 15 degree fan at the tip.
3. Working from the exposed back-up surfaces at all cracks, identify and remove any loose remaining units and re-set them with new mortar slushed into surrounding voids. Add new bricks in place of damaged bricks, toothing them into the surrounding work to re-create solid conditions within the walls.
4. Point the cracks in the remaining back-up withers and insert regularly spaced ½' diameter plastic grouting tubes into the pointing mortar.
5. After the mortar has stiffened, gravity feed grout into the pointed cracks via a funnel and the plastic tubes. Vary the injection pressure by varying the height of the funnel with the plastic tubes. Randomly drill-test the grouted joints during the first stages of grouting to verify the effectiveness of the injection procedures.
6. Following internal re-setting and/or grouting of the back-up construction, re-set original bricks (or salvaged re-used replacement bricks) into the toothed openings along the crack locations, fully bedding all of the units (top, bottom, ends and back sides) in wet mortar. Strike and finish-point the work to match the existing surrounding construction.

B. Horizontal Crack Repair

1. Mechanically widen and clean horizontal cracks in brickwork being careful not to sever the self-support of the wall by cutting all of the way through it.
 - a. Remove mortar from sides of cracks to expose ends of bricks at each side of widened horizontal joints.
 - b. Flood cracks with water at 10 psi maximum pressure and allow deleterious materials and any sand or residue to flow out at bottom.
 - c. Temporarily shim widened cracks that may cause the supported masonry above to shift downward after cleaning.

2. Clean and inspect back surfaces of walls for corresponding horizontal cracks and rusted metal embeds and notify the Engineer of any and all such locations.
 - a. Look for embedded steel lintels and inserts that are rusted and may have caused the horizontal cracks. Notify the Engineer of any and all such locations and coordinate crack repair with rusted lintel replacements.
 - b. Where cracks are present in the back-up, restore the back surfaces of the wall in a fashion similar to what is described for back-up repair under Item "A" working from the back or front of the wall where appropriate.
 - c. "Sound-out" brickwork along vertical cracks to check for delamination from the backup. Remove and re-set loose, shifted or delaminated brickwork as described under Item "A" above.
 3. After cracks are cleaned and back-up wall surfaces are repaired (or inspected showing no damage), pressure-pack grout into the crack in advance of pointing.
 - a. Pack a pasty mix of grout into the cleaned and widened horizontal cracks, ramming the grout into place with metal or wooden packing tools.
 - b. Start at one end and progress to the other watching for the forward advancement of grout from deep within the crack during the packing and ramming process.
 4. Following grouting, point the horizontal cracks, pushing mortar deeply into any remaining recesses and voids. Tool to match the surrounding original construction. Clean all newly re-set and repointed surfaces after completion of masonry work.
 5. Perform all work incrementally and brace wall as needed to maintain safe vertical and lateral support.
- C. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 45 degrees F. by 9:00 AM and rising and less than 90 degrees F.

3.6 INSTALLATION OF DOWELS, ANCHORS, TENSION RODS AND CONNECTORS

- A. Drill holes for embedded anchors, dowels and pinning rods as follows:
1. Locate holes within the existing masonry so that they are at least 2" from the nearest joint intersection and within the faces of existing units rather than in the joints.
 2. Monitor Conditions of brick or stone units as the drill is advancing into them. Check for vibration or movement of brick units halfway through each by tapping with the bit. Notify the Engineer if the brickwork or stonework feels "soft".
 3. All holes greater than 1/2" diameter shall be drilled using a diamond tipped core drill, dry application on interior surfaces, wet or dry application on exterior surfaces. Do not use a rotary hammer or impact type hammer for holes greater than 1/2" in diameter.
- B. Install Adhesive-Set connectors, pins and dowels as shown on the Contract Drawings and as described below using the applicable Injection System.
1. Carefully drill holes of the proper oversize diameter for the screen tube (in masonry) and for injection resin or sealants 1/8" larger in diameter than the anchor rod or pin, or as indicated on the Drawings or specified by the manufacturer of the injection system if different.
 2. Locate and size anchors and pins in as indicated in the Contract Documents and as needed per Engineer's field instructions following exposure of hidden conditions.
 3. Provide embedments as noted or instructed but not less than 8" embedment at 1/2" diameter and larger anchors or 4" embedment at anchors of less than 1/2' diameter.

4. Incrementally core-drill all holes being careful not to damage or loosen substrate and being careful to avoid embedded metal if any.
5. Simultaneously with injection of holes, pre-butter rods' surfaces with injection resin so that there is a uniform coating all around the rod of between 1/16" and 1/8" in thickness and insert rods immediately thereafter.
6. Wipe off excess resin and clean out remaining hole depth. Do not allow resin to leak out of holes and stain stone surface(s). Remove resin immediately if this happens!
7. Monitor progress and quality of work, adjusting techniques as may be necessary with approval of the Engineer. Check that annular space is filled around the end of each rod following insertion. If properly installed, resin should be oozing out beyond end of rod all around annular space, showing that the annular space and the hole are completely filled. Supplementary injection may be necessary due to the presence of voids.

3.7 RECONSTRUCTION AND BONDING OF MULTI-WYTHE BRICK MASONRY

- A. Install drilled and grout-set reinforcing steel into the existing structure per the requirements of this Section and as indicated on the drawings. Install longitudinal reinforcing with 24" lap joints concurrently with the brick masonry reconstruction.
- B. Lay-up new brickwork with lateral headers to tooth wythes together at a 16" by 16" pattern and toothing into existing construction with in the horizontal longitudinal direction with full running bond.
 1. Repeatedly pre-soak surfaces to which new work will be bonded to a period of not less than 24 hours. Allow to surface dry to a dull but saturated finish and hand rub a cement paste slurry within 30 minutes before applying new work.
 2. Lay a bed of mortar against intact masonry surfaces to surround the unit(s) to be reset. Hand rub a mortar paste slurry over contact surfaces of stones to be set and existing surfaces to which new work will be bonded, and pre-butter depressions that are deeper than 1/4" to provide a non-concave surface. The bedded mortar should match the finished joints in thickness plus an allowance for sloughing.
 3. Brick units shall be re-set to within 1/4" of their previous positions and surface alignment, with individual joints' widths along all sides within 1/8" of their cumulative average width per stone. Reconstruct masonry using conventional and accepted techniques. Add header bricks between new wythes at a 24" x 16" pattern and anchor new wythes to existing construction using bent Retrofit Masonry Anchors. All horizontal and vertical joints (including collar joints) shall be completely filled with mortar that shall match the existing construction.
 4. Strike outer joints to a depth of 1/2" recess from brick faces and surrounding masonry at exterior wall surfaces to allow for final tuck pointing, and tool joints at interior surfaces to meet the outer surfaces of the bricks with a profile that matches the surrounding existing work.
- C. Following a curing period of not less than one nor more than 7 days, final tuck-point exterior surfaces of walls to match the adjacent original construction and the approved test sample. Provide feathered transitions from new to adjacent, existing mortar, angled at approx. 45 degrees from the exterior brick surface place.
- D. Moist-cure all completed work for periods of not less than 72 hours.
- E. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

3.8 RE-SETTING OF STONework

- A. At bed joints, add lead shims as needed to help float large units without squeezing out the mortar. Install stone anchors at proper alignments and stack next courses of units properly over them. Incorporate cotton chord weeps as indicated below next courses' head joints and clean sloughed mortar off internal stone perches at voided construction to expose tops of lower courses and weeps. Tool the interior edge of the mortar bedding at cavities

to provide “shed joints” at a 1:1 slope, keeping the weep extensions clear of mortar. Incorporate flashing where indicated, providing solid bedding below the flashing to minimize “oil canning”.

- B. At head joints, fill the gaps between stone ends solidly with mortar, using backer rods at the interior edges of cavity construction if needed. Add slate shims if greater than 1” thickness, in order to minimize shrinkage and sloughing.
- C. At bonded collar joints, hand rub a mortar paste slurry over the contact surfaces of the stone to be set and pre-butter depressions which are deeper than 1/4" to provide a non-concave surface. After setting and adjusting the stone units, pack bonded collar joints with mortar, adding stone aggregate shims if greater than 1” in thickness to minimize sloughing and shrinkage. Aggregate shall be washed, moistened pea-stone if the joint is between 1" and 3" in width, and small loose stones of suitable size if joint width is greater than 3".
- D. Stones shall be re-set to within 1/4” of their previous positions and surface alignment, with individual joints’ widths along all sides within 1/8” of their cumulative average width per stone.
- E. Strike outer joints at a recessed depth of 2 1/2 times the joints’ widths from the surrounding masonry and provide dovetail transitions to existing surrounding joints and to those that are to be re-pointed or removed.
- F. Finish point outer surfaces of the joints to match surrounding work after not less than 24 hours from the setting of the stones and filling of the joints.
- G. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

3.9 SETTING OF STONE CAPS OR COPING

- A. Measurement and Preparation:
 - 1. Clean contact surfaces of stones of all existing mortar or deleterious materials. Clean surfaces to expose stone below.
 - 2. Measure stones to establish existing geometry and for establishing proper relationship and orientation between stones when re-set. Proper Relationship shall be such that all three principle axes of each stone are parallel with the respective principal axes of the mating stone (or CMU backup). Orientation of stones shall be established for each unit so that the front and top direction is maintained constant between all interconnected units and to match the present orientations, and so that the pieces fit together like a puzzle and existing pins and holes align.
 - 3. Drill holes in units to receive setting pins according to the Contract Drawings and this Section.
- B. Size and arrange lead shims and on bearing surfaces. Shims shall be lead sheet of proper size and shall provide for full and symmetrical bearing of reset stone to within 1/16” tolerance of the indicated geometries.
- C. Fill setting pin holes on undersides of units with sealant and carefully set stones into proper final positions.
- D. Coordinate flashing installation and provide integral flashed “thimbles” over all setting pins.
- E. Following setting of stonework, point and/or flexibly seal the inter-stone joints as and where indicated on the Contract Drawings.
- F. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

3.10 PREPARATION OF JOINTS FOR REPOINTING

- A. Rake mortar joints in existing construction in areas designated to be repointed to a minimum depth of 2.5 times the mortar joint width, 1", or as deeply as necessary to reach sound mortar (whichever is greatest), but not to exceed one half of the thickness of the stone thickness without supplementary means of support. Employ tools

that are sharp and will completely cut out joints at intersections without splitting or damaging stones or bricks. Raking work shall match the approved test sample.

- B. Gently drive wedges or hardwood shims into wide, deep cracks in masonry where there is a possibility that the vertical and in-plane lateral support of masonry work will be compromised during deep raking of the joints. This should at least be done where more than half of the length of a specific joint is removed to a depth of more than one third of the thickness of the stone.
- C. Cut flashing reglets in new or existing masonry as indicated on the Contract Drawings.
- D. Wire brush clean and then pre-wet the joints and allow for the existing mortar to dry or saturate to a dull, non-glossy finish immediately before applying new mortar.
- E. Where applicable, lead-abate all immediate lead-painted masonry surface areas that will be affected by cutting and pointing work, prior to starting masonry operations.

3.11 RE-POINTING

- A. Pre-wet prepared mortar joint surfaces until they are saturated but surface dry. At flashing reglets, verify that flashing has been fully installed and is stable.
- B. Apply final "tuck" lift of pointing mortar, tooling joints to exactly match the existing joint profiles that are adjacent to the work.
- C. Where so specified, point joints and beds with specified sealant after first installing the specified backup material and applying primer if required, all in strict accordance with the printed instructions of the sealant manufacturer. Test all sealants for compatibility prior to use. Tool all sealants to insure maximum adhesion to contact surfaces.
- D. Moist cure all work, spraying with a water mist and cover with damp cloth or tarpaulin.
- E. Clean mortar from all surfaces following completion and curing of work.
- F. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.
- G. The Contractor shall be responsible for matching the joints of the mock-up surrounding work and shall re-cut and replace any joints that are poorly formed or do not match the mock-up or the surrounding work, as determined by the Engineer, at the Contractor's own expense.
- H. Moist cure all work, spraying with a water mist and cover with damp cloth or tarpaulin.
- I. Chemically clean all surfaces following completion and curing of work, being careful to reveal the mortar aggregate but to not over-etch, weaken or discolor the mortar. Remove excess mortar from the surface before it sets using a bristle brush or by rubbing the surface with burlap or clean sand. If mortar is left on the surface, wash surface clean using dilute solutions of Hydroclean HT-455.
- J. Completed work shall match approved sample patch or shall be re-done at the Contractor's expense.

3.12 FINISH POINTING

- A. Pre-wet prepared surfaces until they are saturated but surface dry.
- B. Apply a 3/8" base lift of tuck pointing mortar, and allow to cure. Base lift shall have a struck recess for tuck-pointing to lock into.
- C. Apply final "tuck" lift of tuck pointing mortar and strike-off for flush surface.
- D. Moist cure all work, spraying with a water mist and cover with damp cloth or tarpaulin.
- E. Clean mortar from all surfaces following completion and curing of work.

- F. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.
- G. The Contractor shall be responsible for matching the joints of the mock-up surrounding work and shall re-cut and replace any joints that are poorly formed or do not match the mock-up or the surrounding work, as determined by the Engineer, at the Contractor's own expense.
- H. Moist cure all work, spraying with a water mist and cover with damp cloth or tarpaulin.
- I. Chemically clean all surfaces following completion and curing of work.
- J. Completed work shall match approved sample patch or shall be re-done at the Contractor's expense.

3.13 CLEANING AND PROTECTION OF COMPLETED MASONRY WORK

- A. As work proceeds and upon completion, remove excess mortar, smears and droppings. Clean adjacent and adjoining surface of marks arising out of execution of work in this Section.
- B. Sweep up and remove daily sand, cleaning compounds and mixtures, dirt, debris and rubbish. Sweep or flush away nightly, all residual washed materials. Keep the premises neat and clean at all times.
- C. After installation and pointing are completed, carefully clean all surfaces of all dirt, excess mortar, grout splatter, stains and/or other site incident defacements. Clean soiled surfaces using a non-acidic solution that will not harm stone or adjacent materials. Consult stone fabricator for acceptable cleaners. Do not use wire brushes, acid or other solutions which may cause discoloration. Use nonmetallic tools in cleaning operation. Apply in accordance with cleaner manufacturer recommendations.
- D. Mechanically remove all loose mortar and concrete splatter with hand tools without scratching, gouging or otherwise marring the existing substrate.
- E. Chemically clean stone following completion of work, and where specifically specified on the drawings.

3.14 SETTING/ RE-SETTING TOLERANCES

- A. Maximum Variation from Plane of Wall: 1/4" in 10 feet or as required by elevator clearances.
- B. Maximum Variation from Plumb: 1/4" per story non-cumulative, 1/2" total, or as required by elevator clearances.
- C. Maximum Variation from Level Coursing: 1/8" in 4 feet, 1/4" in 10 feet.
- D. Maximum Variation of Joint Thickness: 1/8".

END OF SECTION

SECTION 04550

GRAVE MARKER CONSERVATION By Building and Monument Conservation

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Attention is directed to the Contract and General Conditions and all sections within Division 1 – General Requirements, Special Conditions which are hereby made a part of this section of the specifications.
- B. Attention is directed to the plot plans for the Centre Street, West Parish (River Street) and South Parish (Winchester St) Burying Grounds which indicate the locations of tombs to be treated under this contract.

1.2 SUMMARY AND DESCRIPTION OF WORK

- A. The work of this section consists of the provision of all plant, materials, labor and equipment, power, water and trash removal and the like necessary and/or required for the complete execution of all stone conservation as required by the specifications and schedules.
- B. Outline of General Scope of Work:
 - 1. Review of existing project reports, conditions assessments and documentation for all the carved or lettered stones, etc that are scheduled to receive conservation treatments and/or resetting under this contract. See attached schedule for specific markers and treatments.
 - 2. Document the condition of each table top tomb, obelisk or lettered plaque scheduled to receive conservation treatments and/or resetting under this contract with a survey sheet and digital photographs prior to proceeding with any work.
 - 3. Submit conservation treatment plan for each tomb for approval prior to proceeding with any work.
 - 4. Stabilize all loose fragments of stone and friable areas of stone with tissue paper and B-72 or water soluble adhesives prior to proceeding with any other treatments including removal and resetting of stones.
 - 5. Complete specified conservation treatments as stipulated for each tomb. Treatments include but are not limited to: Removal and resetting of stones, removal of prior treatments, gluing of pieces separated along cleavage planes, gluing of pieces broken across cleavage planes or bedding planes, grouting of fissures, cracks and seams, application of mortar caps, composite mortar repairs and laying down of flaking areas.
 - 6. Document all treatments with digital photographs during conservation work. Provide owner with copies of digital photographs saved on a high quality CD.
 - 7. Thoroughly document conditions after conservation work is complete with sketches and digital photographs.
 - 8. Provide the City of Newton, with one complete project binder containing the following: Prints of digital photographs taken before, during and after conservation treatments, copies of all survey sheets, field reports, project correspondence, material safety data sheets, and manufacturer's cut sheets for all products

C. Outline of Specific Treatments:

Treatment for Slate Tomb Plaques

- a. Document conditions prior to removal using survey sheet and photography as per specifications.
- b. Secure all loose and friable areas with B-72 and tissue paper or water soluble adhesives prior to removal from the ground.
- c. Number all fragments that are too large to secure with B-72 and tissue paper using a numbering system based on the existing plot plan and the name and date of the deceased (where legible).
- d. Remove tomb plaques from adjacent masonry as per specifications prior to disassembling the tomb front walls where possible. Place any fragments in clearly labeled plastic bags for reattachment at a later time.
- e. Remove soil residue from stones with water and stiff brushes and wood scrapers.
- f. Remove prior adhesive, old setting mortar, fills, grouts and composite patching repairs where applicable.
- g. Re-adhere fragments using specified adhesives and methods.
- h. Fill cracks, seams and fissures with specified grouts and cap open seams, cracks, fissures etc with specified products.
- i. Fill areas of loss with specified composite repair materials.
- j. Apply mortar caps on top surface of stones where required.
- k. Reset stone per specifications.

Treatments for Brownstone Table Top – Slabs, Legs and Footings

- a. Document conditions prior to removal or treatment using survey sheet and photography as per specifications.
- b. Secure all loose and friable areas with B-72 and tissue paper or water soluble adhesives prior to removal from the ground or further treatment.
- c. Remove soil residue and biological growths with water and specified cleaning products using stiff brushes and wood scrapers.
- d. Remove prior adhesive and composite patching repairs where applicable.
- e. Re-adhere fragments using specified adhesives and methods.
- f. Laydown flaking areas with specified grouts/adhesives.
- g. Fill cracks, seams and fissures with specified grouts/adhesives.
- h. Fill areas of loss with specified composite repair materials.
- i. Replace severely deteriorated brownstone elements where directed by the contract documents with new Portland Connecticut brownstone units cut, carved and tooled to match the existing.

Treatments for Marble Tomb Plaques and Marble Obelisk

- a. Document conditions prior to removal using survey sheet and photography as per specifications.

- b. Secure all loose and friable areas with B-72 and tissue paper or water soluble adhesives prior to removal from the ground.
- c. Number all fragments that are too large to secure with B-72 and tissue paper using a numbering system based on the existing plot plan and the name and date of the deceased (where legible).
- d. Remove tomb plaques from adjacent masonry as per specifications prior to disassembling the tomb front walls where possible. Place any fragments in clearly labeled plastic bags for reattachment at a later time.
- e. Remove soil residue and biological growths with water and specified cleaning products using stiff brushes and wood scrapers.
- f. Remove prior adhesive, old setting mortar, fills, grouts and composite patching repairs where applicable.
- g. Pre-consolidate friable marble where specified.
- h. Re-adhere fragments using specified adhesives and methods.
- i. Fill cracks, seams and fissures with specified grouts and cap open seams, cracks, fissures etc with specified products.
- j. Fill areas of loss with specified composite repair materials.
- k. Apply mortar caps on top surface of stones where required.
- l. Reset stone per specifications.

1.3 SUBMITTALS

- A. Resumes and Qualifications: Contractor shall submit resumes and qualifications for each or the following individuals:

Conservator (s): Contractor shall submit resume and a list of prior projects for lead conservator and any assisting conservators on the project. Submittal shall include at least five examples of projects similar in scope and importance to the work at three Newton Burying Grounds. Project references shall include name and date of execution of each project as well as the names and telephone numbers of references for each of the five projects.

Conservation Technicians and Stone Craftsmen: Contractor shall submit the resumes and a list of prior projects for each individual who will be executing treatments on the stones. In the submittal, the role of each individual shall be identified i.e. carver, mechanic, technician.
- B. Product Data: Submit manufacturer's technical data for each product indicated including recommendations for their application and use. Include test reports and certifications substantiating that products comply with requirements. Submit material safety data sheets.
- C. Written Description: Submit written program for each phase of conservation including schedule and phasing. Include items for coordination with other trades and indication of how surrounding materials will be protected. Describe materials and equipment to be used on site.
- D. Alternate Methods: If, after the contract is awarded, alternate methods and materials to those indicated are proposed for any phase of the stone conservation work, the contractor shall provide a written description, including evidence of successful use on other comparable projects along with standard submittals outlined above. Written approval from the project conservator is required prior to substituting any materials or methods.

1.4 MOCK UPS

- A. Sample of workmanship for stone pre-consolidation and stone re-adhesion.
- B. The contractor shall submit one sample of removal of prior adhesive repairs and prior composite mortar repairs in locations indicated by project conservator. Samples to be evaluated for methodology and impact on stone.
- C. Contractor to submit one sample of stone to stone adhesive joints for approval prior to proceeding with balance of repairs.
- D. Contractor to submit one sample each of B-72 and grouting for approval.
- E. Contractor to submit one sample each of: mortar fills, composite mortar repairs, mortar caps and capping of cracks and fissures.

1.5 QUALITY ASSURANCE

- A. Statement of Significance: The tombs, table top markers, obelisks and inscribed plaques located in the three Newton Historic Burying Grounds represent some of the earliest and most significant gravemarkers in New England. The three sites are designated historic burying grounds and are listed on the National Register.
- B. Stone Conservation Contractor: Work shall be performed by firm(s) employing masons and conservators that have no less than five years of experience with comparable stone conservation projects. The Contractor shall submit references for five successfully completed projects of similar scope.
- C. The contractor shall maintain a steady crew for the duration of the project. Employ a qualified foreman who is present on the job everyday.
- D. All work performed must comply with the United States Secretary of the Interior's Standards for the Treatment of Cultural Landscapes and the AIC Code of Ethics and Guidelines for Practice.

1.6 JOB CONDITIONS

- A. Take whatever precautions are necessary to protect the stone units from damage resulting from work under this section or other related sections of work.
- B. Prevent mortar and patching compounds, adhesives, resins etc used in conservation and repair work from staining the stones under treatment or any adjacent stones, masonry, bronze etc. Prevent damage from other materials or chemicals used on the project.
- C. Work shall not be permitted in freezing weather unless the work area has been enclosed and heated to maintain a constant temperature and humidity.
- D. Materials shall be used only at the manufacturer's recommended temperature and humidity tolerances. In case of conflict between standards on the project, the more stringent shall apply.

PART 2 - PRODUCTS

2.1 MATERIALS GENERAL

- A. Comply with referenced standards and other requirements indicated applicable to each type of material required.
- B. Reference in the specifications to materials by trade name is to establish a standard of quality. It is not intended to exclude other manufacturers whose materials that, in the judgement of the project conservator are equivalent to those named based on sample panels.

2.2 MORTAR MATERIALS FOR FILLS, REBUILDING AREAS OF LOSS AND MORTAR CAPS

- A. Composite Repair Mortars
 - 1. Non-Polymer Modified Composite Repair Mortars for filling areas of loss in Slate or Brownstone : Jahn M-70 for brownstone repairs/fills from Cathedral Stone Products. 8332 Bristol Court, #107, Jessup, Maryland 20794 (800) 684-0901 or approved alternate based on submittal.
 - 2. Polymer Modified Composite Repair Mortars for Mortar Caps and Seam fills on Slate Markers : Edison Custom System 45 from Edison Chemical Systems, Inc. 25 Grant Street, Waterbury, CT 06704 (203) 597-8044
 - 3. Hydraulic Lime Based Repair Mortars for Filling Seams and areas of Loss on slate or brownstone Markers: Lithomix from St Astier Naturally Hydraulic Lime available from Virginia Limeworks PO Box 516 Monroe, Virginia 24574

2.3 GROUT MATERIALS

- A. Acryloid B-72 (Ethyl Methacrylate Copolymer) dissolved in solvent. Concentrations to vary depending on the depth and width of the crack or void to be filled. Large voids to be filled with B-72 bulked with an inert material such as fine silica sand. Exact proportions to be determined by conservator in the field based on the size of the area to be filled and other requirements such as the ability of the mix to flow evenly through the area.
- B. Hydraulic Lime Grout for fills and injecting into voids
 - 1 part hydraulic lime.
 - 2 –3 parts fine sand and/or stone dust and inorganic pigment as required to match color of slate. Not to exceed ASTM ratios of pigment to binder.
 - Virginia Limeworks PO Box 516 Monroe, Virginia 24574 or Triamca 8828 south Hardy Drive, Tempe, AZ 85284 www.triamca.com

2.4 MATERIALS FOR THE STABILIZATION OF LOOSE FRAGMENTS PRIOR TO REMOVAL OR OTHER TREATMENTS.

Acrylic Resin B-72 and Japanese tissue paper or fine cloth such as silk Crepeline applied to the surface of the friable or loose stone. B-72 to be dissolved in solvent such as acetone. Percentage of solids to solvent to be field tested. Approximately 5% . For situations where a water soluble adhesive is appropriate: Methyl Cellulose or Polyvinyl Alcohol can be used to lay down the tissue paper or cloth.

2.5 STONE ADHESIVES FOR NON-STRUCTURAL REPAIRS AND LAYING DOWN OF STONE FLAKES, AND VERY SHALLOW AREAS OF EXFOLIATION.

Paraloid Acrylic Resin B-72 (100%) dissolved in solvent such as acetone. Percentage of solids to solvent to be field tested. Approximately 10% Paraloid B-72 can be obtained from Talas, 568 Broadway NY, NY 10012 (212) 219-0770 or other conservation supply companies.

2.6 STONE ADHESIVE FOR STRUCTURAL REPAIRS AND PINNING

Flowable and Paste Epoxies for injections and structural repairs:

Akemi Akepox 2000, 2010, 2030, 5000, 5010 from Akemi North America

(877) 462-5364 available from Stone Boss Industries, 26-04 Borough Place, Woodside, NY 11377 (718)278-2677 Fax (718) 267-1997

2.7 CLEANING AGENTS FOR REMOVING SOILING PRIOR TO ADHESIVE REPAIRS

- A. Water: All water shall be clean potable water. If potable water is not available at jobsite, filter all water with approved particulate filter.
- B. Non-Ionic Detergents: Triton X 100 available from Talas, 568 Broadway, New York, NY 10012 (212) 219-0770
- C. Concentrated Soap: Vulpex Soap available from Talas, 568 Broadway, New York, NY 10012 (212) 219-0770
- D. Synthetic Anionic Detergent: Orvus WA Paste available from Talas, 568 Broadway, New York, NY 10012 (212) 219-0770

2.8 STONE PRE-CONSOLIDANTS AND CONSOLIDANTS FOR SUGARING/FRIABLE MARBLE

- A. Preconsolidant: ProSoCo Conservare HCT
- B. Consolidant: ProSoCo Conservare OH100

2.9 TOPICAL COLORING AGENT FOR COLOR MATCHING OF MORTAR PATCHES, SEAMS AND CRACK FILLS ON SLATE MARKERS

- A. Kiem Purktistalat silicate paints available from Kiem Mineral Systems, #62 Port Lewes, Lewes, and Delaware 19958 (302) 644-1007 Fax (302) 644-0866
- B. Silin Stain from Cathedral Stone Products. 8332 Bristol Court, #107, Jessup, Maryland 20794 (800) 684-0901

2.10 SOLVENTS FOR FLUSHING CRACKS AND FISSURES AND FOR PREPARING MATING SURFACES PRIOR TO GROUTING OR ADHESIVE REPAIRS.

- A. Acetone (CH₃)₂CO
- B. Ethanol-D6 Anhydrous

2.11 REPLACEMENT BROWNSTONE:

- A. New or salvaged Portland Connecticut Brownstone. New brownstone can be obtained from: Portland Brownstone Quarries, 130 Braemar Drive, Cheshire, Ct. 06410 203 250-1502 Attn: Mike Meehan

PART 3 - EXECUTION

3.1 TREATMENT PLAN

Conservator retained by contractor is to submit for review a detailed treatment proposal for the stone units scheduled for treatment. Conservation plan is to include any changes in scope, materials and/or methodologies from what has been specified. No work may commence on the markers until the treatment plan has been reviewed and approved. Treatment plan to include detailed descriptions of materials and methods to be used in each treatment as well as manufacturer's data on each product. Material Safety Data Sheets for each product to be submitted separately. Treatment plan to include sequence of treatments. Plan shall be considered incomplete and will be rejected unless all treatments from start to finish for an individual sculpture are submitted at the same time.

3.2 DOCUMENTATION

- A. Survey Sheet: Each plaque, obelisk or table top marker that is treated under this contract shall have an individual survey and treatment sheet. The survey sheet shall record the plot number of the marker as indicated on the existing survey, the name of deceased, (where legible) and the year of death. The survey sheet shall contain a rough outline sketch of the marker and indications of major conditions including cracks, fissures, areas of loss and prior repairs. The type of material and the rough dimensions shall also be recorded. All treatments shall be recorded on the survey sheet and located on the outline sketch along with any other pertinent information. A sample survey sheet shall be submitted at the start of the contract. Completed survey sheets shall be placed in archival sleeves and turned over to the City of Newton.
- B. Photo-documentation: Each marker that is treated under this contract shall have a minimum of 6 views photographed digitally showing the marker from the front, back and/or top, before, during and after treatment. Markers that have conditions on the sides that are being addressed should also be photographed from the side views. All photographs of the before treatment phase are to be reviewed prior to starting treatments.

Submit one set of 4 x 6 inch prints on archival paper of the digital photographs. Each photograph is to have a label adhered on the back with typed identification of the marker by plot number, name and date of treatment as well as cemetery. Each photograph is to be labeled before, during and after treatment.

3.3 SECURING OF FRAGMENTS

- A. The goal of this step shall be to secure all loose, semi-detached or friable areas against loss during other conservation treatments including pointing and cleaning. Contractor will be held responsible for losses on the stone that take place during conservation treatments therefore the extent of this step shall be that which is in the contractor's judgement sufficient to secure against losses.
- B. Acrylic Resin B-72 dissolved in a solvent such as acetone approximately 5% solids shall be applied with a brush to areas requiring pre-consolidation. Japanese tissue paper shall be applied to wetted areas. Additional solution of B-72 may be applied over tissue paper. Alternate for units to be stored/treated indoors a water soluble adhesive can be used in place of the B-72

3.4 REMOVAL OF STONE FROM WALL AND REMOVAL OF PRIOR MORTAR FILLS AND COMPOSITE MORTAR REPAIRS

- A. Surface tension and bond of prior repairs may be broken using power tools such as small diamond cutting wheels, Drummel Tools and small pneumatic chisels. All other removal to be performed by skilled craftsmen using hand tools. Use of hand held grinders or other power tools shall be only after demonstrated proficiency by each craftsman/conservation technician on selected control areas. Cutting wheel shall not be brought in proximity with stone surface or arrises. Cutting wheels shall be used only to break the bonds and create entry points for hand tools. Every precaution shall be taken not to damage, nick, scar or abrade the stone.

3.5 MORTAR FILLS AND MORTAR CAPS -GENERAL

- A. The goal of mortar fills and caps is create the maximum water shedding fill, joint or seam for each particular configuration of stone.
- B. Surface of fill shall be tooled and slicked to conform to the contours of the edge of the stone in order to achieve maximum water shedding.
- C. Mix mortar to specified proportions and in conformance with the color and texture of approved samples.
- D. Apply mortar to stone that has been properly prepared and is free of dirt, soiling and any loose or friable material or surface accretions that may have a detrimental effect on the bond. Wet stone to avoid excess absorption of moisture from mortar.
- E. Apply mortar in consecutive lifts where required to avoid excessive shrinkage.
- F. Moist cure mortar for a minimum of seven days or until mortar is properly cured.

- G. When composite mortar repair has reached full 28 day cure tint surface of mortar, if required with Keim Purktistalat silicate paints available from Kiem Mineral Systems, #62 Port Lewes, Lewes, Delaware 19958 (302) 644-1007 Fax (302) 644-0866 or approved equal.

3.6 MORTAR APPLICATION FOR FILLS AND MORTAR CAPS

- A. First layer to create a uniform depth for later applications and to be thoroughly compacted into cavities: apply mortar to a maximum thickness of 3/8"
- B. After voids have been filled to a uniform depth, apply remaining mortar in successive 1/4" thick layers: fully compact each layer and allow to dry to thumbprint hardness before applying next layer.
- C. When final layer is thumbprint hard, tool to match approved sample.
- D. Avoid feather-edging of mortar joint.
- E. If existing stonework has rounded edges from wear, recess slightly the mortar from face of stone surface.
- F. Immediately after completion, remove excess mortar by light brushing with a natural bristle brush. Do not leave encrusted matter.
- G. Keep mortar damp for 48 hours after pointing to permit proper hardening of mortar. Cover masonry temporarily with burlap, which is moistened periodically. Cover wall with plastic sheets temporarily to prevent evaporation. Continue to Moisten for up to seven days if required because of high temperatures or high winds. Protect mortar from overnight rain.
- H. For proprietary mortars; follow manufacturer's directions for applying and curing mortars.

3.7 CLEANING AFTER MORTAR FILLS OR PATCHING OR GROUTING

- A. The face of all stonework shall be thoroughly cleaned after completion of the patching, grouting, fills and other work liable to soil the stone. The stonework shall be gone over and any mortar splashes or smears shall be carefully removed from the surface with scrapers.
- B. The cleaning shall be done with clean water applied vigorously with fiber brushes. After cleaning with brushes the stone shall be thoroughly rinsed with clear water. Proprietary cleaning compounds containing caustic agents, intended for removing mortar smears shall not be used. The goal is to remove all smears before they set so that caustic agents are not required.

3.8 CLEANING OF MARKERS

- A. The goal of the stone cleaning is to produce a surface that is free of organic growths and general soiling prior to adhesion, grouting or application of repair mortars. This includes removal of all surface dirt and encrustations.
- B. For General Soiling: Pre-Wet surface of stone with potable water. Apply Triton X-100 Non-ionic detergent diluted with water to stone surface using a natural bristle brush. Allow detergent and water to remain on surface for length of time determined in cleaning mock-ups. Rinse surface with water from garden hose.
- C. Repeat water and non-ionic detergent wash or proceed to water with other specified cleaning agents as determined by the results of cleaning mock-up.
- D. For Removal of Biological Growths: Pre-Wet surface of stone with potable water. Apply Prosoco Biowash diluted 1:10 with water to stone surface using a natural bristle brush. Allow cleaner and water to remain on surface for Five to Ten Minutes. Scrub stone with natural bristle brush and then rinse surface with water from garden hose. Reapply as required.

3.9 RE-ADHESION OF STONE (NON STRUCTURAL)

- A. Prepare mating surfaces of stone that is to be re-adhered by cleaning surfaces until surfaces are free of dirt, sand, old grout, old mortar, ferrous metal stains or deposits and organic materials. After cleaning with specified cleaning agents clean with specified solvents just prior to apply adhesive materials.
- B. Loose pieces of stone shall be reattached with Acrylic Resin B-72 dissolved in a solvent such as acetone. Approximately 10%-15% solids. Area of stone to receive reattachment and piece to be reattached shall be thoroughly coated with adhesive. Secure fragment until adhesive is set. Secure with reversible means. Clean surface of stone so that no adhesive residue remains on surface.

3.10 B-72 INJECTIONS FOR AREAS OF SHALLOW EXFOLIATION

- A. Using a hypodermic needle, inject solvent into crack or fissures to clean surfaces. After solvent has evaporated inject Acrylic B-72 10-15% by volume in solvent. Wipe surface clean and remove any excess with solvent. Hold acrylic back ½ inch from face of seam with clay. Remove clay and grout seam face with specified material tinted to match cleaned stone. Alternately, introduce B-72 to area of delamination using a method that relies on capillary action to draw material into the area.

3.11 LIME GROUT

- A. The goal of lime based fills is to prevent against further water penetration into fissures or small areas of loss in marble and to create a water shedding surface.
- B. Pre-wet area to be grouted with water.
- C. Apply high calcium lime grout with small spatula. Compress grout into opening. Tool surface so that grout is flush with surface. Moist cure grout for 24 hours or until set and cured.

3.12 LIME INJECTION GROUTS FOR SURFACE CRACKS IN MARBLE

- A. Flush seam, crack or fissure with solvent.
- B. As solvent is evaporating inject lime injection grout as per manufacturer's specifications.
- C. When injecting into vertical surfaces, use clay or latex dams to contain grout. Provide ports in dams to verify that grout has flowed to that level.
- D. Cure grout as per manufacturer's specifications.

3.13 ADHESIVE REPAIRS

- A. Prepare mating surfaces by removing prior adhesives where applicable and cleaning to remove soiling with detergents as specified above and with solvents to remove oils as specified above.
- B. Lay fragments to be adhered on clean flat surface if marker has been removed from ground.
- C. Drill holes to receive pins where applicable, if necessary and at the consultant's direction. Blow dust out of drill holes. Test fit by placing pins in holes and dry setting. Set pins in edge of one fragment with epoxy and mate surfaces. Do not apply epoxy to mating faces or other end of pin at this point. Adjust fit using clamps and jigs to hold stone in place. It is important that proper mating be achieved at this point. When epoxy has set, separate pieces and apply epoxy to other end of pins and sparingly along mating surfaces. Reclamp stones and keep under pressure until epoxy has set. Set time will vary depending on temperature of air and stone.
- D. For fragments that will not be pinned, follow steps above for cleaning and dry setting to ensure proper fit. Use clamps and jigs as required to secure pieces.
- E. For Fragments to be adhered while marker is still in the ground follow steps above for cleaning. Use jigs and flat surfaces clamped to the stone in order to achieve best possible mating of surfaces.
- F. Mix and apply adhesives as per manufacturer's recommendations.

G. Hold glue line away from face of stone in order to grout seam with limebased grout after adhesive has set.

H. Immediately remove any adhesive residue that has flowed over the face of stone

3.14 MARBLE PRE-CONSOLIDATION TREATMENT

A. ProSoCo Conservare HCT Stone Pre-Consolidant to be applied as manufacturer's directions.

- All stone to be pre-consolidated shall be thoroughly dry. Protection of area to be consolidated from rain for at least two weeks prior to consolidation is a requirement.
- Apply pre-consolidant with a pump sprayer. Flood surface to the point that no more material can be absorbed. Wait 20 to 30 minutes and reapply. Wait 20 to 30 minutes and apply third and final flood coat.
- After waiting 20 to 30 minutes, apply Part B, stabilizing rinse.
- Allow material to cure 48 hours prior to proceeding with stone consolidation with the Conservare OH.

3.15 MARBLE CONSOLIDATION TREATMENT

A. **The specifications in this section outline the treatment but are not intended to limit or override any of the manufacturer's product or safety data or to limit or define any applicable safety standards. It is the contractor's responsibility to familiarize themselves with all applicable standards.**

The following conditions must be achieved prior to beginning stone consolidation:

- Repointing shall be completed and approved.
- All pointing, patching mortars and lime-based grouts shall be thoroughly cured. Minimum of 28 days.
- All areas to receive stone consolidation must be cleaned and free of dirt, grime and gypsum crusts. All cleaned areas must have received final sign-off by project conservator.
- All loose or semi-detached fragments of stone shall be reattached and the adhesive shall be properly cured. Adhesion joints must be protected against the solvents of the stone consolidants or they will loosen during consolidation.
- All adjacent areas of building and grounds shall be properly protected.
- All stone to be consolidated shall be thoroughly dry. Protection of area to be consolidated at least two weeks prior to consolidation is a requirement.

B. Submittals for Consolidation Treatments

Product Data: Contractor shall review all written data sheets, Material Safety Data sheets and container labels and all special requirements

Materials List: The Contractor shall submit to the project conservator a complete list of materials proposed for use which gives the manufacturer's name and any necessary identification numbers for each product.

Manufacturer's Recommendations: The contractor shall submit to the project conservator a copy of manufacturer's current product data and current material safety data sheets as well recommendations for application and relevant limitations, safety and environmental precautions and application rates.

C. Environmental Requirements:

Work in this section shall not be conducted when the air temperature or the surface temperature of the stone is below 50 degrees Fahrenheit or above 85 degrees Fahrenheit. Or, if the relative humidity is below 40% or above 70%.

Consolidants shall not be applied during rain or to wet surfaces or when there is a chance of rain 24 hours after application.

Materials shall not be applied when there is a chance the winds may carry chemicals to unprotected surfaces or areas outside the contract jurisdiction.

D. Application:

Conservare OH stone strengthener should be applied in repeated applications referred to as cycles.

Each cycle consists of three (3) successive saturating applications applied at five (5) to fifteen (15) minute intervals depending on drying times. The completed treatment requires three (3) cycles or (9) applications.

Spray OH from the bottom up to the point that the stone can absorb no more material.

Allow stone strengthener to be fully absorbed by the stone before proceeding with next application. Absorption time will be between 5 and 15 minutes depending on drying time.

Repeat applications until three applications have been completed. Allow surfaces to dry for 20 minutes before beginning next cycle of three applications.

Continue applications until three cycles of three application have been completed. There should be 9 applications of consolidant in all.

Protect treated areas for two weeks against contact with liquid water.

E. Cleaning Solvent:

A quantity of MEK sufficient to treat one days work shall be kept on sight during the consolidant treatment. The cleaning solvent shall be used in the event of an over-application of consolidant where the material remains on the surface and does not penetrate.

Follow manufacturer's directions and all safety precautions. Like the consolidant the cleaning solvent contains flammable and toxic materials. The same stringent controls outlined above of the use of the Conservare OH apply to the use of the cleaning solvent.

3.16 FABRICATION OF BROWNSTONE REPLACEMENT UNITS

- A. Submit full size templates of brownstone legs for approval prior to fabrication. Submit shop drawings with measurements of brownstone lintels
- B. Fabricate replacement units from brownstone that is free of clay seams, large aggregate, checks and fissures. Texture, tooling and grade of stone to match existing. Replicate all hand applied finishes.

3.17 FABRICATION AND INSTALLATION OF GRANITE DUTCHMEN

- A. Submit sample of granite for dutchmen repair to demonstrate match.
- B. Cut area of loss in existing stone straight and level in order to create a surface for mating.
- C. Adhere dutchmen to existing stone using specified adhesives. Secure stones with clamp stone until epoxy has set.
- D. Apply final tooling to stone across epoxy seam.

END OF SECTION

SECTION 05500

STRUCTURAL STEEL FABRICATIONS

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

- A. Stainless steel pinning rods
- B. Galvanized steel lintels
- C. Custom fabricated connection hardware

1.2 RELATED SECTIONS

- A. Section 02210 – Temporary Shoring and Bracing
- B. Section 04500 – Masonry Restoration

1.3 REFERENCES

- A. Comply with the following standard material specifications:
 - 1. AISC – Code of Standard Practice – Manual of Steel Construction – Allowable Stress Design (ASD)
 - 2. ASTM A992 – Structural Steel
 - 3. ASTM A123 – Zinc (Hot Dipped Galvanized) Coatings on Iron and Steel Products
 - 4. ASTM A153 – Zinc (Hot Dip) Coating on Iron and Steel Hardware
 - 5. ASTM A240, Type 304 – Stainless Steel Plate
 - 6. ASTM A276, Type 304 – Threaded Round Stainless Steel Bar Stock
 - 7. ASTM A307 – Carbon Steel Externally Threaded Standard Fasteners
 - 8. ASTM A325 – High Strength Steel Bolts
 - 9. ASTM A563 – Carbon and Alloy Steel Nuts
 - 10. AWS A2.4 – Symbols for Welding, Brazing, and Nondestructive Examination
 - 11. AWS D1.1 – Structural Welding Code
 - 12. SSPC (Steel Structures Painting Council) – Painting Manual

1.4 SUBMITTALS

- A. Submit the following items to the Engineer for review:
 - 1. Shop Drawings of all fabrications and castings showing quantities, field verified dimensions, locations, and connections to be made in the field
 - 2. Product literature for standard products and/or mass-produced items to be used
 - 3. Daily logs of work.

1.5 QUALITY CONTROL

- A. Comply with all referenced standards for the products employed.
- B. Coordinate times of Engineer's Special Inspections and make site available.

PART 2 - PRODUCTS

2.1 FABRICATIONS AND CONNECTORS-GENERAL

- A. All structural steel fabrications shall be pre-welded, punched, and fitted as required to minimize work in the field.
- B. All burrs, nicks and kinks shall be removed from fabricated items before shipment to site or to Galvanizer.
- C. Non-stainless structural steel fabrications shall be composed ASTM A992, Grade 50 steel and shall be of welded construction. All welds shall be continuous and as shown on the drawings. Welding electrodes shall be AWS E70-XX. Fabrication shall be done per applicable referenced standards. All stainless structural steel fabrications shall be composed of ASTM A240, Type 304, welded with compatible stainless electrodes of similar strength whose deposition shall in no way hinder the corrosion properties of the base metal or the weld.
- D. All non-stainless structural steel fabrications shall be hot dip galvanized in accordance with ASTM A123.

2.2 STAINLESS STEEL RODS AND PINS

- A. Provide straight stainless steel threaded rods meeting ASTM A276, Type 304. Rods shall be threaded over their entire lengths.

PART 3 - EXECUTION

3.1 INSTALLATION OF RODS AND MISCELLANEOUS CONNECTORS

- A. Install Stainless Steel Rods and Galvanized Steel Lintels per Section 04500 and contract drawings.

END OF SECTION

SECTION 05750

CAST IRON DOOR COVERS

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

- A. Stainless steel bolts and connectors.
- B. Cast Iron vault door covers and hardware.

1.2 RELATED SECTIONS

- A. Section 02210 - Temporary Shoring and Support
- B. Section 04500 - Masonry

1.3 REFERENCES

- A. Comply with the following standard material specifications:
 - 1. AISC – Code of Standard Practice – Manual of Steel Construction – Allowable Stress Design (ASD).
 - 2. ASTM A36 – Structural Steel.
 - 3. ASTM A48 –Gray Iron Castings.
 - 4. ASTM A240, Type 304 - Stainless Steel Plate.
 - 5. ASTM A276, Type 304 - Threaded Round Stainless Steel Bar Stock.
 - 6. ASTM A307 - Carbon Steel Externally Threaded Standard Fasteners.
 - 7. ASTM A325 – High Strength Steel Bolts.
 - 8. ASTM A500, Grade B – Carbon Steel for Cold Formed Structural Tubes.
 - 9. ASTM A563 – Carbon and Alloy Steel Nuts.
 - 10. AWS A2.4 – Symbols for Welding, Brazing and Nondestructive Examination.
 - 11. AWS D1.1 – Structural Welding Code.
 - 12. SSPC (Steel Structures Painting Council) - Painting Manual.

1.4 SUBMITTALS

- A. Submit the following items to the Engineer for review:
 - 1. Shop Drawings of all fabrications and castings showing quantities, field verified dimensions, locations, and connections to be made in the field.
 - 2. Product literature for standard products and/or mass produced items to be used.

1.5 QUALITY CONTROL

- A. Comply with all referenced standards for the products employed.
- B. Allow access for Engineer's Special Inspections to shop and site as requested by the Engineer and provide the Engineer with the fabrication and installation schedule.
- C. Tomb door manufacturer shall make his facility available on short notice for inspection of work by a testing and inspection agency hired by the City to verify conformance to specifications.

PART 2 - PRODUCTS

2.1 STRUCTURAL STEEL FABRICATIONS AND CONNECTORS

- A. All structural steel fabrications shall be pre-welded, punched, and fitted as required to minimize work in the field, or shall be shipped of extra length to allow for inconsistencies in existing conditions if they are to be field fabricated.
- B. All burrs, nicks and kinks shall be removed from fabricated items before shipment and installation.
- C. Structural steel fabrications shall be composed of the following materials:
 - 1. Plates, carbon steel bars, beams and angles shall be ASTM A36
- D. All structural steel fabrications shall be hot dip galvanized in accordance with ASTM A123.
- E. Fabrication shall be done per applicable referenced standards.

2.2 STAINLESS STEEL TIE RODS AND HARDWARE

- A. Provide stainless steel rods meeting ASTM F593, AIA Type 304 with mated turnbuckles, washers and nuts of AISI type 304 or 304, stainless. Tapered plate washers as required shall be milled ASTM A240, Type 304 stainless steel plate. Provide thread overlaps at noted on drawings and run threads 3" longer than required to account for filed adjustment.

2.3 STAINLESS STEEL PINNING RODS AND HARDWARE

- A. Provide stainless steel threaded rods meeting ASTM F593, AISI Type 304 with mated nuts of AISI type 304 or 304, stainless where indicated.
- B. At pinning rods set in existing stone rubble facades and set in concrete: Provide 3", 90 degree hooks at outer ends and grind or press sides of hook and outer 2" of shanks to 3/8" thickness. Bend shall be made hot and shall have a 1" inside radius. Provide threads over 12" lengths at inner (opposite) ends and double nuts where indicated.
- C. At pinning rods set in holes drilled in existing facing stones and brick arches: Provide threads over 12" lengths both ends of rods.

2.4 VAULT DOOR COVERS

- A. Vault door cover assemblies shall be of the following materials:
 - 1. Vault Door Covers shall be Cast Gray Iron meeting ASTM A48, grade 30.
 - 2. Vault door plate connectors shall be galvanized steel angles with pre-welded painted stainless steel nuts meeting AISI type 304 or 302 aligned with holes as shown on the drawings.
 - 3. Attachment hardware from connectors to stonework shall be stainless steel rods meeting ASTM F593, AISI Type 304, to be drilled and grouted into the existing stonework. Washers and nuts shall be AISI type 304 or 302, stainless.

4. Attachment hardware between door plates and door plate connectors shall be 1/2" dia. countersunk, pan head AISI type 304 or 302, 18-8 stainless steel bolts with a black oxide finish, length to suit installation. Bolt heads shall have two opposing insert holes for turning with a standard tool, two of which shall be provided to the City for use. Bolt Installation hardware and inserts shall match that which is currently in use by the City at other locations where possible. Washers and nuts shall be AISI type 304 or 304, stainless.
- B. Vault doors shall be shop painted with an approved 3-coat paint system as follows:
1. Preparation: SSPC SP-6
 2. Base Coat: "Rust Blok" rust inhibiting primer by Benjamin Moore of Milford, NJ or equivalent, color: Gray.
 3. Intermediate Coat: "IronClad" alkyd intermediate coat by Benjamin Moore or equivalent, color: Black.
 4. Top Coat: "Impervo Enamel" alkyd top coat Benjamin Moore or equivalent, color: Black.
- C. Drilled and reamed holes shall be provided with for 1/16" oversize for adjustment, and all burrs, nicks and kinks shall be removed from fabricated items before shipment and installation.
- D. Holes in angle connectors for drilled and grouted anchors shall be longitudinally slotted for vertical adjustment. Hot dip galvanize after pre-welding nuts.

2.5 EPOXY GROUT FOR ANCHORAGE OF RODS

- A. Epoxy anchor grout shall be by the HIT HY20 epoxy injection system as manufactured by HILTI, Inc of Tulsa, OK, or approved equal.

PART 3 - EXECUTION

3.1 STAINLESS STEEL TIE RODS AND GALVANIZED STEEL SIDE GIRTS

- A. Expose vault and shore, repair, and restore masonry work, and drill holes for tie rods per Section 04100.
- B. Coordinate geometry between connected tie rod holes and existing vault surfaces. Locate holes to align with drilled rod locations through vault walls. Galvanize side girts after cutting and punching holes.
- C. Provide clean trenches to lay the side girts into for maximum straight continuous lengths (side girt may be split into up to three sections with no less than two tie rods in each). Placement of side girts shall allow for total encasement in grout, mortar, and/or peastone concrete so that there is no less than 1" of cover between steel and soil materials.
- D. Install and tension tie rods per Section 04500.

3.2 STAINLESS STEEL PINNING RODS

- A. Install stainless steel pinning rods per Section 04500.

3.3 VAULT DOOR COVERS

- A. Install angle connectors for vault door covers by drilling and epoxy grouting stainless steel anchor bolts per the drawings. Set and shim angle connectors so that the exposed flat legs are at the proper offsets with respect to the wall surface and all surfaces are parallel to the wall surface and coplanar.
- B. Drill countersunk reamed holes in the cast iron door plates to align with the bolt hole patterns of the angle connectors at each of the vault door openings, checking clearances with existing hinge pintles. Paint plates after drilling and reaming holes. Door plates shall be set so that the top edges are all parallel to each other and to the average alignment of the tops of the wall.
- C. Trial set plates against angle connectors and install temporary carbon steel headed bolts with thread pitch matching permanent bolts. Provide shims between angle connectors and plates as required for full four point contact before tightening, temporarily keeping shims in place with approved means. Following approval of plate orientation and alignment, or readjustment of angle connectors, replace temporary bolts with final countersunk bolts.
- D. Touch-up paint all damages to finish on plate covers and paint exposed bolt heads.

END OF SECTION

DRAWINGS

22 Pages of Drawings

are available on The City's Website: www.ci.newton.ma.us/bids

or pickup in the Purchasing Department, Room 204